



MathStep

5

***Teacher's
Resource Book***

For Order : 0320-5899031

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Chapter No: 1

Exercise 1.1...**a) 2,523,467**2 Two Million5 Five Hundred Thousand2 Twenty Thousand3 Three Thousand4 Four Hundred6 Sixth7 Seven**b) 4,962,631**4 Four Million9 Nine Hundred Thousand6 Sixty Thousand2 Two Thousand6 Six Hundred3 Thirty1 One**c) 5,836,276,221**5 Five Billion8 Eight Hundred Million3 Thirty Million6 Six Million2 Two Hundred Thousand7 Seventy Thousand6 Six Thousand

2 Two Hundred

2 Twenty

1 One

d) 3,116,641,248,545

3 Three Trillion

1 One Hundred Million

1 Ten Billion

6 Six Billion

6 Six Hundred Million

4 Forty Million

1 One Million

2 Two Hundred Thousand

4 Forty Thousand

8 Eight Thousand

5 Five Hundred

4 Forty

5 Five

e) 523,457,922

5 Five Hundred Million

2 Twenty Million

3 Three Million

4 Four Hundred Thousand

5 Fifty Thousand

7 Seven Thousand

9 Nine Hundred



2 Twenty

2 Two

Exercise 1.2....

A:

- (a) Four Million
- (b) Thirty Thousand
- (c) Two Hundred Thousand
- (d) Two Thousand
- (e) One Hundred Thousand
- (f) Seventy Million
- (g) Two Billion
- (h) Five Billion
- (i) Thirty Billion
- (j) Nine Million

B:

- (a) Seven Lac
- (b) Ninty Lac
- (c) Sixty Corores
- (d) Seven Crore
- (e) Seven lac
- (f) Four lac
- (g) Three Kharab
- (h) Sixty Lac
- (i) Five Thousand
- (j) Ninty Crore

Exercise 1.3

A.

- a. $3,000,000 + 600,000 + 60,000 + 4,000 + 300 + 20 + 3$
- b. $6,000,000 + 500,000 + 30,000 + 4,000 + 200 + 20 + 3$
- c. $20,000,000 + 100,000 + 90,000 + 9,000 + 300 + 30 + 6$



- d. $40,000,000 + 5,000,000 + 900,000 + 90,000 + 2,000 + 100 + 30 + 5$
- e. $5,000,000 + 400,000 + 20,000 + 200 + 20 + 5$
- f. $9,000,000 + 300,000 + 4,000 + 500 + 8$
- g. $90,000,000 + 9,000,000 + 900,000 + 90,000 + 9,000 + 900 + 90 + 1$
- h. $10,000,000 + 100,000 + 100 + 10$
- i. $3,000,000 + 400,000 + 50,000 + 9,000 + 200 + 30 + 3$
- j. $2,000,000,000 + 500,000,000 + 50,000,000 + 3,000,000 + 200,000 + 20,000 + 1,000 + 300 + 60 + 6$

B.

- a. 5,214,325
- b. 2,365,132
- c. 356,452, 040
- d. 2,230,405, 405,600
- e. 700,246,055

C.

- a. 200,000
- b. 30,000 , 60
- c. 7,000,000, 1,000
- d. 20,000,000 , 600
- e. 20,000,000 , 500,000 , 30
- f. 7,000,000 , 700
- g. 6,000 , 9
- h. 6,000 , 20
- i. 4,000,000 , 30,000
- j. 300,000



D:

- a. 65,999,999
- b. 23,244,999
- c. 123,449,999
- d. 11,654,449
- e. 549,999
- f. 99,999,999

Exercise : 1.4....

A:

- a. 3,4,1,2
- b. 3,4,1,2
- c. 3,4,1,2
- d. 3,4,1,2
- e. 4,5,1,3,2
- f. 3,5,1,4,2

B:

- a. 2,1,4,3
- b. 3,4,1,2
- c. 4,2,,1,3
- d. 1,4,2,3
- e. 4,1, 3,2,5
- f. 3,2,4,1,5

Chapter No:2

Exercise : 2.1...**A:**

- a) 3883774666
- b) 46431722
- c) 40958286248
- d) 56063932569
- e) 10788861
- f) 11010340

Exercise : 2.2

- a) 38083865
- b) 3458846
- c) 684511
- d) 781467
- e) 36728288
- f) 56236705
- g) 13529152
- h) 10082879

Exercise : 2.3**A:**

- a) 262301093
- b) 481150
- c) 662058136
- d) 754436
- e) 543840586
- f) 89055698
- g) 4475415
- h) 484910083

B:

- a) 3067535
- b) 1937920
- c) 1644708
- d) 49036810
- e) 7675190
- f) 20957053

C:

- a) 1971591
- b) 6003415
- c) 11524836
- d) 17959006
- e) 32682569
- f) 22234890

Exercise : 2.4

A:

- a) 16183625
- b) 6616812
- c) 13240566
- d) 13651293
- e) 41732032
- f) 16288812

B:

- a) 63399375
- b) 30650556
- c) 65892120
- d) 191298800
- e) 122167220
- f) 1017276131

C:



- a) 243335508
- b) 350864664
- c) 3102603500
- d) 2294691000
- e) 35215626275
- f) 4930841600

D:

- a) 3189269504
- b) 4845366444
- c) 29001850864
- d) 41832331050
- e) 38668259640
- f) 49135912440

Exercise : 2.5...

A:

- a) 845705
- b) 10827103
- c) 334216
- d) 1516813
- e) 652063
- f) 542964

B:

- a) 74804
- b) 2165446
- c) 111405
- d) 284430
- e) 372641
- f) 108592

C:



- a) 36773
- b) 193341.036
- c) 139162.292
- d) 22122
- e) 289808
- f) 5283

Exercise : 2.6...**Q.1= Solution:**

Total Pages: 260

Pages Read on Monday: 35

Pages Read on Tuesday: 40

Pages left to read: $260 - 35 - 40$

Pages left to read: 185

Q.2= Solution:

Money saved last month = Rs24000

Money saved this month: 3 times 24000 = 3×24000

Money saved this month = 72000

Q.3= Solution:

Gorilla's height = 6 feet

Giraffe's height = 18 feet

Giraffe taller than gorilla = $18 / 6 = 3$ times

Q.4= Solution

No. of books read by Uzma = 12



No. of books read by Asma = $12 / 4$

No. of books read by Asma = 3 books

Q.5= Solution

No. of crayons Sara originally had = 64

No. of crayons lost = 8

No. of crayons broken by little sister = 3

No. of crayons left = $64 - 8 - 3$

No. of crayons left = 54

Q.6= Solution

Miles run on Monday: 2

Miles run on Tuesday: 3 times the miles ran on Monday i.e. $2 \times 3 = 6$

Miles run on first two days of the week: $2 + 6 = 8$

Miles to run for the week: 20

Miles already run: 8

Miles left: $20 - 8$

Miles left = 12

Exercise : 2.7

A:

- a) $12^2 = 12 \times 12 = 144$
 b) $8^3 = 8 \times 8 \times 8 = 512$
 c) $20^3 = 20 \times 20 \times 20 = 8000$
 d) $14^2 = 14 \times 14 = 196$
 e) $15^2 = 15 \times 15 = 225$
 f) $7^3 = 7 \times 7 \times 7 = 343$
 g) $10^4 = 10 \times 10 \times 10 \times 10 = 10000$
 h) $28^2 = 28 \times 28 = 784$
 i) $50^3 = 50 \times 50 \times 50 = 125000$
 j) $10^8 = 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 100000000$

Exercise : 2.8**Q.1: Solution**

Soaps produced in year 1: 25000

Soaps produced in year 2: 25000 + 85000

Soaps produced in year 2 = 110000

Q.2: Solution

Total votes polled: 2,387,550

Votes in favor of candidate 1 = 98,238

Votes in favor of candidate 2 = 1,15,759

Votes in favor of candidate 3 = Total votes – votes (candidate 1) – votes (candidate 2)

Votes in favor of candidate 3 = 2,387,550 - 98,238 - 1,15,759

Votes in favor of candidate 3 = 2173553

Q.3: Solution

Earned by Mr. Irfan = Rs. 2,57,088

Earned by wife = Rs. 123672

Earned by son = Rs. 96750

Family income = 2,57,088 + 123672 + 96750

Family income = Rs. 477510

Q.4: Solution

Bigger Number: 581,641,200

Smaller Number: 392,715,315

Required Number = Bigger – Smaller

Required Number = 581,641,200 - 392,715,315

Required Number = 188925885



Q.5: Solution

Year 1: 64,52,148 eggs

Year 2: 70,26,075 eggs

Year 3: 81,21,236 eggs

Total: 64,52,148 eggs + 70,26,075 eggs + 81,21,236 eggs

Total eggs : 21,599,459

Q.6: Solution

Potatoes available: 38,650 kgs

Potatoes sold: 9,640 kgs

Potatoes left: $38,650 - 9,640 = 29010$ kgs

Q.7: Solution

Total students = 192

One raft can have = 16 students

Total rafts needed = $192/16$

Total rafts needed = 12 rafts

Q.8: Solution

Total ad budget = Rs540,000

Per ad cost = Rs12000

No. of ads = $540000 / 12000$

No. of ads = 45

Chapter No: 3**Exercise : 3.1...****Q.1:**

a) $4 / 20 = 1/5 = 0.2$

b) $4 / 50 = 2/25 = 0.08$

c) $16 / 40 = 8/20 = 4/10 = 2/5 = 0.4$

d) $18 / 25 = 0.72$

e) $17 / 50 = 0.34$

f) $24 / 60 = 12/30 = 6/15 = 2 / 5 = 0.4$



g) $7 / 15 = 0.467$

h) $4 / 9 = 0.44$

i) $2 / 5 = 0.4$

j) $22 / 45 = 0.489$

Q.2:

a) $27/100$

b) $89/100$

c) $1622/100$

d) $4585/100$

e) $1379/25$

f) $6573/1000$

h) $4422/100$

i) $8236/1000$

j) $6807/1000$

Q.3:

a) $2/5 = 0.4 \times 100 = 40\%$

b) $1/25 = 0.04 \times 100 = 4\%$

c) $19/20 = 0.95 \times 100 = 95\%$

d) $11/15 = 0.7333 \times 100 = 73.33\%$

e) $4/5 = 0.8 \times 100 = 80\%$

f) $39/50 = 0.78 \times 100 = 78\%$

g) $47/55 = 0.8545 \times 100 = 85.45\%$

h) $44/70 = 22/35 = 0.6285 \times 100 = 62.85\%$

i) $48/60 = 24/30 = 12/15 = 0.8 \times 100 = 80\%$

j) $55/75 = 11/15 = 0.7333 \times 100 = 73.33\%$

Q.4:

a) $0.77 \times 100 = 77\%$

b) $0.19 \times 100 = 19\%$

c) $0.007 \times 100 = 0.7\%$

d) $0.084 \times 100 = 8.4\%$

e) $2.8 \times 100 = 280\%$

f) $4.46 \times 100 = 446\%$

g) $16.64 \times 100 = 1664\%$

h) $10.84 \times 100 = 1084\%$

i) $8.830 \times 100 = 8830\%$

j) $44.762 \times 100 = 4476.2\%$

Exercise : 3.2...**Q.1**

a) $4/3, 3/2, 8/4$

b) $2/3, 5/6, 7/8$

c) $4/6, 3/4, 5/8$

d) $3/4, 1/2, 6/8$

e) $3/8, 2/4, 2/3$

f) $4/8, 4/6, 3/4$

g) $4/9, 1/2, 5/5$

h) $2/4, 3/4, 6/4$

i) $3/11, 7/11, 3/3$

j) $2/5, 7/7, 10/9$

Q.2

a) $>$

b) $<$

c) $>$

d) $<$

e) $>$

f) $>$

g) $>$

h) $<$

i) $<$

j) $<$

Exercise : 3.3...

a) $7 + 2 + 5/9 = 14/9$

b) $2/12 + 1/4 + 1/4$

$2/12 \times 1/1 + 1/4 \times 3/3 + 3/4 \times 3/3$

$2/12 + 3/12 + 9/12$

$2 + 3 + 9 / 12$

$14/12 = 7/6$

c) $3/6 + 7/9 + 1/2$

$3/6 \times 3/3 + 7/9 \times 2/2 + 1/2 \times 9/9$

$9/18 + 14/18 + 9/18$

$9 + 14 + 9 / 18$

$32/18 = 16 / 9$



d) $3/9 + 2/3 + 1/6$

$3/9 \times 2/2 + 2/3 \times 6/6 + 1/6 \times 3/3$

$6/18 + 12/18 + 3/18$

$6 + 12 + 3/18$

$21/18 = 7/6$

e) $7/8 + 1/5 + 5/6$

$7/8 \times 15/15 + 1/5 \times 24/24 + 5/6 \times 20/20$

$105+24+100/120$

$105+24+100/120$

$229/120$

f) $1/2 + 1/10 + 1/6$

$1/2 \times 15/15 + 1/10 \times 3/3 + 1/6 \times 5/5$

$15/30 + 3/30 + 5/30$

$15+3+5/30 = 23/30$

g) $5/8 + 9/18 + 8/15$

$5/8 \times 45/45 + 9/18 \times 20/20 + 8/15 \times 24/24$

$225/360 + 180/360 + 192/360$

$225 + 180 + 192/360$

$597/360 = 199/120$

h) $2/12 + 1/4 + 1/4$

$2/12 \times 1/1 + 1/4 \times 3/3 + 3/4 \times 3/3$

$2/12 + 3/12 + 9/12$

$2 + 3 + 9 /12$

$14/12 = 7/6$

i) $1/24 + 2/7 + 4/18$

$1/24 \times 21/21 + 2/7 \times 72/72 + 4/18 \times 28/28$

$21/504 + 144/504 + 112/504$

$21+144+112/504$

$277/504$

j) $7/8 + 11/20 + 8/15$

$7/8 \times 15/15 + 11/20 \times 6/6 + 8/15 \times 8/8$

$105/120 + 66/120 + 64/120$

$105+66+64/120$

$235/120 = 47/24$



$$\begin{aligned} \text{k) } 5 \frac{3}{8} + 1 \frac{4}{7} &= \frac{43}{8} + \frac{11}{7} \\ \frac{43}{8} \times \frac{7}{7} + \frac{11}{7} \times \frac{8}{8} & \\ \frac{301}{56} + \frac{88}{56} & \\ \frac{301+88}{56} & \\ \frac{389}{56} & \end{aligned}$$

$$\begin{aligned} \text{l) } 5 \frac{4}{20} + 10 \frac{4}{6} &= \frac{104}{20} + \frac{64}{6} \\ \frac{104}{20} \times \frac{3}{3} + \frac{64}{6} \times \frac{10}{10} & \\ \frac{312}{60} + \frac{74}{60} & \\ \frac{312 + 74}{60} & \\ \frac{386}{60} = \frac{193}{30} & \end{aligned}$$

Exerciser : 3.4

- a) 2.74
- b) 15.47
- c) 10.86
- d) 20.11
- e) 1.77
- f) 1.12
- g) 0.277
- h) 0.372
- i) 2.448
- j) 3.206

Exercise : 3.5**A: Solve the fractions:**

$$\text{a) } 3 \frac{1}{7} - \frac{2}{7} = \frac{20}{7} = 2 \frac{6}{7} \cong 2.8571429$$

Calculation steps

1. Change into mixed fraction $3 \frac{1}{7} = (7 \times 3) + 1 = 22$
2. Subtracting the numerators as denominators same: $22 - 2$
- 3: Numerator = 20, denominator=7

$$\text{b) } 3 \frac{3}{12} - \frac{7}{12} = \frac{8}{3} = 2 \frac{2}{3} \cong 2.6666667$$

Calculation steps

1. Change into mixed fraction: $3 \frac{3}{12} = (12 \times 3) + 3 = 39$
2. Subtracting the numerators as denominators same: $39 - 7$



3: Numerator = 32, denominator=12 = 32/12
Simplifying it, 32/12 = 16/6 and then 8/3

c) $13 \frac{2}{5} - \frac{3}{5} = \frac{64}{5} = 12 \frac{4}{5} = 12.8$

Calculation steps

1. Change into mixed fraction $13 \frac{2}{5} = (5 \times 13) + 2 = 67$
2. Subtracting the numerators as denominators same: $67 - 3 = 64$
3. Numerator = 64, denominator=5 = 64/5

d) $18 \frac{2}{20} - \frac{10}{20} = \frac{88}{5} = 17 \frac{3}{5} = 17.6$

Calculation steps

1. Change into mixed fraction $18 \frac{2}{20} = (20 \times 18) + 2 = 182$
2. Subtracting the numerators as denominators same: $182 - 10 = 172$
3. Numerator = 172, denominator=20
Simplifying it, $172/20 = 88/5$

e) $\frac{7}{11} - \frac{1}{3} = \frac{10}{33} = 0.303$

Calculation steps

1. Find common denominator: common multiple is 33 so $\frac{7}{11} \times \frac{3}{3} = \frac{21}{33}$ and $\frac{1}{3} \times \frac{11}{11} = \frac{11}{33}$
2. Subtracting the numerators: $21 - 11 = 10$
3. Numerator = 10, denominator=33

f) $\frac{8}{23} - \frac{1}{5} = \frac{17}{115} \cong 0.147$

Calculation steps

1. Find common denominator: common multiple is 115 so $\frac{8}{23} \times \frac{5}{5} = \frac{40}{115}$ and $\frac{1}{5} \times \frac{23}{23} = \frac{23}{115}$
2. Subtracting the numerators: $40 - 23 = 17$
3. Numerator = 17, denominator=115

g) $\frac{16}{25} - \frac{2}{4} = \frac{7}{50} = 0.14$

Calculation steps

1. Find common denominator: common multiple is 100 so $\frac{16}{25} \times \frac{4}{4} = \frac{64}{100}$ and $\frac{2}{4} \times \frac{25}{25} = \frac{50}{100}$
2. Subtracting the numerators: $64 - 50 = 14$
3. Numerator = 14, denominator=100
Simplifying $14/100$, we have $7/50$

h) $\frac{6}{10} - \frac{1}{8} = \frac{19}{40} = 0.475$

Calculation steps

1. Find common denominator: common multiple is 80 so $\frac{6}{10} \times \frac{8}{8} = \frac{48}{80}$ and $\frac{1}{8} \times \frac{10}{10} = \frac{10}{80}$



2. Subtracting the numerators: $48 - 10 = 38$
 3. Numerator = 38, denominator = 80
- Simplifying $38/80$, we have $19/40$

i) $8/20 - 1/4 = 3/20 = 0.15$

Calculation steps

1. Find common denominator: common multiple is 20 so $8/20 \times 1/1 = 8/20$ and $1/4 \times 5/5 = 5/20$
2. Subtracting the numerators: $8 - 5 = 3$
3. Numerator = 3, denominator = 20

j) $9/19 - 1/4 = 17/76 \cong 0.223$

Calculation steps

1. Find common denominator: common multiple is 76 so $9/19 \times 4/4 = 36/76$ and $1/4 \times 19/19 = 19/76$
2. Subtracting the numerators: $36 - 19 = 17$
3. Numerator = 17, denominator = 76

k) $16 \frac{3}{9} - 10 \frac{2}{5} = 89/15 = \cong 5.93$

Calculation steps

1. Change into mixed fraction first: $16 \frac{3}{9} = (9 \times 16) + 3 = 147/9$ and $10 \frac{2}{5} = 52/5$
Find common denominator: common multiple is 45 so $147/9 \times 5/5 = 735/45$ and $52/5 \times 9/9 = 468/45$
 2. Subtracting the numerators: $735 - 468 = 267$
 3. Numerator = 267, denominator = 45
- Simplifying $267/45$ after dividing both by 3 we have, $89/15$

l) $19 \frac{2}{3} - 11 \frac{5}{8} = 193/24 = 8 \frac{1}{24} \cong 8.0416667$

Calculation steps

1. Change into mixed fraction first: $19 \frac{2}{3} = (3 \times 19) + 2 = 59/3$ and $11 \frac{5}{8} = 93/8$
Find common denominator: common multiple is 24 so $59/3 \times 8/8 = 472/24$ and $93/8 \times 3/3 = 279/24$
 2. Subtracting the numerators: $472 - 279 = 193$
 3. Numerator = 193, denominator = 24
- Simplifying $193/24$ after dividing both by 8 we have, $8 \frac{1}{24}$

B: Solve the fractions:



a) $14 \frac{4}{10} - 13 \frac{1}{3} + \frac{4}{7} = \frac{172}{105} = 1 \frac{67}{105} \cong 1.638$

Calculation steps

1. Change into mixed fraction first: $14 \frac{4}{10}$ or $14 \frac{2}{5} = (5 \times 14) + 2 = \frac{72}{5}$ and $13 \frac{1}{3} = \frac{40}{3}$ while $\frac{4}{7}$ remains same
2. Find common denominator of 5,3 and 7: common multiple is 105 so $\frac{72}{5} \times \frac{21}{21} = \frac{1512}{105}$ and $\frac{40}{3} \times \frac{35}{35} = \frac{1400}{105}$ and $\frac{4}{7} \times \frac{15}{15} = \frac{60}{105}$
3. Subtracting and adding numerators: $1512 - 1400 + 60 = \frac{172}{105}$
4. Numerator = 173, denominator=105

b) $9 \frac{32}{45} - 5 \frac{32}{45} + \frac{32}{45} = \frac{212}{45} = 4 \frac{32}{45} \cong 4.71111111$

Calculation steps

1. Change into mixed fraction first: $(45 \times 9) + 32 = \frac{437}{45}$ and $(45 \times 5) + 32 = \frac{257}{45}$ and $\frac{32}{45}$
2. Common multiple is 45 so subtracting and adding numerators: $437 - 257 + 32 = 212$
4. Numerator = 212, denominator=45

c) $8 \frac{9}{10} - 3 \frac{2}{3} + (\frac{1}{2}) = \frac{172}{30} = 5 \frac{11}{15} \cong 5.73$

Calculation steps

1. Change into mixed fraction first: $(10 \times 8) + 9 = \frac{89}{10}$ and $(3 \times 3) + 2 = \frac{11}{3}$ and $\frac{1}{2}$
2. Common multiple of $\frac{89}{10}$, $\frac{11}{3}$ and $\frac{1}{2}$ is 30, so $\frac{89}{10} \times \frac{3}{3} = \frac{267}{30} - \frac{11}{3} \times \frac{10}{10} = \frac{110}{30} + \frac{1}{2} \times \frac{15}{15} = \frac{15}{30}$
3. Subtracting and adding numerators: $267 - 110 + 15$
4. Numerator = 172, denominator=30

d) $14 \frac{32}{45} - 13 \frac{32}{45} + \frac{32}{45} \cong 1.71$

Calculation steps

1. Since fractions $\frac{32}{45}$ is common, we simply add/subtract fractions
Hence, we have $\frac{32}{45} - \frac{32}{45} + \frac{32}{45} = \frac{32}{45}$
2. Subtracting and adding whole numbers: $14 - 13 = 1$
3. Answer: $1 \frac{32}{45}$

e) $7 \frac{5}{12} - (2 \frac{1}{2}) + \frac{4}{4} = \frac{63}{12} = 5.25$

Calculation steps

1. Change into mixed fraction first: $(12 \times 7) + 5 = \frac{89}{12}$ and $(2 \times 2) + 1 = \frac{5}{2}$ and $\frac{4}{4}$
2. Common multiple is 12, so $\frac{89}{12} \times \frac{1}{1} = \frac{89}{12} - \frac{5}{2} \times \frac{6}{6} = \frac{30}{12} + \frac{4}{4} \times \frac{3}{3} = \frac{12}{12}$
3. Subtracting and adding numerators: $89 - 30 + 4 = \frac{63}{12}$
4. Numerator = 63, denominator=12

f) $\frac{5}{6} - \frac{3}{5} + \frac{7}{5} = \frac{49}{30} = 1.63$



Calculation steps

1. Common Multiple of 6, 5 and 5 =30 so,
 $5/6 \times 5/5 = 25/30$ and $3/5 \times 6/6 = 18/30$ and $7/5 \times 6/6 = 42/30$
2. Add and subtract numerators: $25 - 18 + 42 = 49$
3. Numerator= 49 denominator=30

Exercise : 3.6...

- a) 11.95
- b) 15.997
- c) 4.26
- d) 2.39
- e) 5.21
- f) 4.46
- g) 4.832
- h) 0.83
- i) 3.655
- j) 4.597

Exercise : 3.7...

- a) $5/8 \times 2/1$
 $5/4 \times 1/1$
 $5/4$
- b) $11/10 \times 5/2$
 $11/2 \times 1/2$
 $11/4$
- c) $9 \frac{5}{6} \times 4$
 $59/6 \times 4$
 $59/3 \times 2$
 $118/3$
- d) $5 \times 9 \frac{3}{8}$
 $5 \times 75/8$
 $375/8$
- e) $6 \frac{1}{4} \times 2 \frac{7}{11}$
 $25/4 \times 29/11$



$$725/44$$

f) $3 \frac{2}{2} \times \frac{9}{10}$

$$\frac{8}{2} \times \frac{9}{10}$$

$$\frac{2}{1} \times \frac{9}{5}$$

$$\frac{18}{5}$$

g) $3 \frac{6}{12} \times \frac{7}{12}$

$$\frac{42}{12} \times \frac{7}{12}$$

$$\frac{7}{12} \times \frac{7}{2}$$

$$\frac{49}{24}$$

h) $3 \frac{1}{2} \times 6 \frac{2}{7}$

$$\frac{7}{2} \times \frac{44}{7}$$

$$22$$

i) $2 \frac{5}{7} \times 5 \frac{1}{3}$

$$\frac{19}{7} \times \frac{16}{3}$$

$$\frac{304}{21}$$

j) $6 \frac{4}{5} \times 4 \frac{1}{10}$

$$\frac{34}{5} \times \frac{41}{10}$$

$$\frac{17}{5} \times \frac{41}{5}$$

$$\frac{697}{25}$$

Exercise : 3.8...

a) 0.014

b) 0.021

c) 762

d) 862

e) 373.88

f) 14905.851

g) 25887.68

h) 0.00012

i) 0.08644

j) 0.07604

Exercise : 3.9...

a) $29/5 \div 13/3 = 29/5 \times 3/13$



$$29 \times 3 / 5 \times 13 = 87/65$$

$$b) 19/3 \div 7/2 = 19/3 \times 2/7$$

$$19 \times 2 / 3 \times 7 = 38/21$$

$$c) 100/12 \div 15/4 = 100/12 \times 4/15$$

$$100 \times 4 / 12 \times 15 = 400/180 = 20/9$$

$$d) 69/8 \div 10/4 = 69/8 \times 4/10$$

$$69 \times 4 / 8 \times 10 = 276/80 = 69/20$$

$$e) 5/4 \div 14/5 = 5/4 \times 5/14$$

$$5 \times 5 / 4 \times 14 = 25/56$$

$$f) 19/2 \div 17/3 = 19/2 \times 3/17$$

$$19 \times 3 / 2 \times 17 = 57/34$$

$$g) 9/2 \div 33/12 = 9/2 \times 12/33$$

$$9 \times 12 / 2 \times 33 = 108/66 = 18/11$$

$$h) 31/10 \div 11/4 = 31/10 \times 4/11$$

$$31 \times 4 / 10 \times 11 = 124/110 = 62/55$$

$$i) 73/12 \div 22/5 = 73/12 \times 5/22$$

$$73 \times 5 / 12 \times 22 = 365/264$$

$$j) 47/5 \div 4/3 = 47/5 \times 3/4$$

$$47 \times 3 / 5 \times 4 = 141/20$$

Exercise : 3.10...

$$a) 0.19$$

$$b) 0.46$$

$$c) 0.0821$$

$$d) 1.5797788$$

$$e) 31.25$$

$$f) 0.046$$

$$g) 0.0077$$

$$h) 41$$

$$i) 31$$

$$j) 23$$

Exercise : 3.11...



Q.1: Solution:

Total Boxes: 6

Each Box has: 12 Markers

Each Marker Price: Rs125

Total Earning: $6 \times 12 \times 125$

Total Earning: Rs 9000

Q.2: Solution

Run each day: $3 \frac{1}{2}$ miles

Run each week (except Sunday) or in 28 days: $3 \frac{1}{2} \text{ miles} \times 6 = 3.5 \times 6 = 21 \text{ miles}$

Run in four weeks (28 days): $21 \times 4 = 84 \text{ Miles}$

Run in last two days of month ($3.5 \text{ miles} + 3.5 \text{ miles}$) = 7 miles

Run in 30 days (except four Sundays) = $84 \text{ miles} + 7 \text{ miles} = 91 \text{ miles}$

Q.3: Solution:

No. of Pizzas: 6

No. of Slices in each pizza: 8

No. of Slices total: $6 \times 8 = 48$

No. of Slices sold: $\frac{1}{4}$ of 48 or $48/4 = 12$

No. of Slices left: Total Slices – Sold Slices = $48 - 12 = 36$

Q.4: Solution:

No. of crayons Irfan has = 50

No. of crayons Azam has = 29

No. of crayons Irfan has over Azam = $50 - 29 = 21$ crayons

Q.5: Solution:

Weight of the turtle = 145 pounds

Weight of turtle in relation of baby turtle = 5 times

Let baby turtle weight is X, then weight of turtle is 5X

Hence, 145 pounds = 5x

Baby turtle weight = $145/5 = 29$ pounds

Q.6: Solution:

No. of muffins baked by Fiza = 115

No. of muffins baked by Fiza in excess of Fatima = 17

No. of muffins baked by Fatima = $115 - 17 = 98$ muffins

Chapter No: 4

Exercise No: 4.1...

A:

- a) $0.4 \times 100 = 40\%$
- b) $0.54 \times 100 = 54\%$
- c) $0.9 \times 100 = 90\%$
- d) $0.48 \times 100 = 48\%$
- e) $0.550 \times 100 = 55\%$
- f) $0.78 \times 100 = 78\%$
- g) $0.32 \times 100 = 32\%$
- h) $0.05 \times 100 = 5\%$
- i) $0.20 \times 100 = 20\%$
- j) $0.88 \times 100 = 88\%$

B:

- | | |
|------|------|
| 1) 3 | 5) 6 |
| 2) 4 | 6) 5 |
| 3) 1 | 7) 7 |
| 4) 2 | |

C:



2) 44%

3) 72%

4) 0.47

5) 88%

6) 0.86

7) 0.93

8) 0.33

Exercise No: 4.2...**A:**

- a) 3,2,4,1
- b) 4,2,1,3
- c) 5,3, 4,2,1
- d) 2,4,1,3
- e) 4,3,2,1,5
- f) 2,1,3,4
- g) 2,1,3,4
- h) 4,2,1,3

B:

- a) $0.09 \times 100 = 9\%$
- b) $0.07 \times 100 = 7\%$
- c) $0.16 \times 100 = 16\%$
- d) $0.20 \times 100 = 20\%$
- e) $0.32 \times 100 = 32\%$
- f) $0.39 \times 100 = 39\%$
- g) $0.55 \times 100 = 55\%$
- h) $0.64 \times 100 = 64\%$
- i) $0.77 \times 100 = 77\%$
- j) $0.83 \times 100 = 83\%$

C:

- a) $6/100 = 0.06$
- b) $11/100 = 0.11$
- c) $33/100 = 0.33$
- d) $57/100 = 0.57$
- e) $40/100 = 0.40$
- f) $67/100 = 0.67$
- g) $60/100 = 0.60$
- h) $88/100 = 0.88$
- i) $70/100 = 0.70$
- j) $79/100 = 0.79$
- k) $0.16/100 = 0.0016$
- l) $0.20/100 = 0.002$
- m) $0.32/100 = 0.0032$
- n) $0.39/100 = 0.0039$
- o) $0.55/100 = 0.0055$
- p) $0.64/100 = 0.0064$
- q) $0.77/100 = 0.0077$
- r) $0.83/100 = 0.0083$

Exercise No: 4.3...**A:**

- a) $46.51 \times 100 = 4651\%$
- b) $31.44 \times 100 = 3144\%$
- c) $42.51 \times 100 = 4251\%$
- d) $23.23 \times 100 = 2323\%$
- e) $58.51 \times 100 = 5851\%$
- f) $40.53 \times 100 = 4053\%$
- g) $56.42 \times 100 = 5642\%$
- h) $34.69 \times 100 = 3469\%$
- i) $45.43 \times 100 = 4543\%$
- j) $17.56 \times 100 = 1756\%$

B:

- a) $4.89 \times 100 = 489\%$
- b) $11.78 \times 100 = 1178\%$
- c) $17.85 \times 100 = 1785\%$
- d) $12.97 \times 100 = 1297\%$
- e) $10.97 \times 100 = 1097\%$
- f) $11.04 \times 100 = 1104\%$
- g) $24.40 \times 100 = 2440\%$



- h) $17.56 \times 100 = 1756\%$
- i) $1098 \times 100 = 1098\%$
- j) $30.32 \times 100 = 3032\%$

C:

- a) $11.31 \times 100 = 1131\%$
- b) $32.32 \times 100 = 3232\%$
- c) $8.45 \times 100 = 845\%$
- d) $14.18 \times 100 = 1418\%$
- e) $13.24 \times 100 = 1324\%$
- f) $12.19 \times 100 = 1219\%$
- g) $1.81 \times 100 = 181\%$
- h) $22.18 \times 100 = 2218\%$
- i) $14.87 \times 100 = 1487\%$
- j) $28.07 \times 100 = 2807\%$

D:

- a) $38.64 \times 100 = 3864\%$
- b) $84.63 \times 100 = 8463\%$
- c) $48.816 \times 100 = 48816\%$
- d) $684.208 \times 100 = 68420.8\%$
- e) $1942.5 \times 100 = 19425\%$
- f) $1594.125 \times 100 = 159412.5\%$
- g) $2409.624 \times 100 = 240962.4\%$
- h) $2813.668 \times 100 = 281366.8\%$
- i) $1438.776 \times 100 = 143877.6\%$
- j) $6316.875 \times 100 = 631687.5\%$

E:

- a) 0.1713%
- b) 0.0679%
- c) 0.0232%
- d) 0.2848%
- e) 0.3732%
- f) 0.0321%
- g) 0.1677%
- h) 1.3370%
- i) 1.1650%
- j) 0.2715%



Exercise No: 4.4...**Q.1) Solution:**

Total earning: \$12800

Tax paid: 15%

Payment is 15/100 of 12800

Payment = $15/100 \times 12800$

Payment = Rs 1920

Q.2) Solution:

Total students: 32

No. of girls: 9

No. of boys = $32 - 9 = 23$ boys

Percentage of boys = $23/32 \times 100 = 71.875\%$

Q.3) Solution

No. of problems answered correctly: 86

Percentage of correct answers: 98%

Hence, 98% of X (total) = 86

So, $98/100$ multiplied by X = 86

Hence, $X = 86 \times 100/98$ or $8600/98$

$X = 87.75$ or approx. 88 problems

Q.4) Solution

Total weight of chocolate bar: 200 g

Plain chocolate is 60% or $60/100 \times 200 = 120$ g

Milk chocolate weight = total weight – plain chocolate weight

Milk chocolate weight = $200\text{g} - 120\text{g} = 80\text{g}$

Q.5) Solution:

Total No. of Students in School: 630

Percentage of girls: 45%

(a) percentage of boys = Total percentage (100%) – girls percentage = 55%

(B)No. of boys = 55% of 630 or $55/100 \times 630 = 346.5 \Rightarrow 347$

(c)No. of girls = total students – boys or $630 - 347$ or $\Rightarrow 383$

Q.6) Solution:

Marks in Computers: 47 out of 50 or $47/50$

Marks in English: 79 out of 100 or $79/100$

Making denominators same we find equivalent fraction of computer marks $47/50$ by multiplying it by $2/2$. We have, $47/50 \times 2/2 = 94/100$

Hence, Ali scored better in computer



Exercise No: 4.5**Q.1) Solution:**

Car bought at : Rs150000

Car sold at: Rs125000

Loss amount: Rs150000 – Rs125000 = Rs25000

(a) Loss percentage at selling price: $25000/125000 \times 100\%$

Loss percentage at selling price: $1/5 \times 100\% = 20\%$

(b) Loss percentage at cost price: $25000/150000 \times 100\%$

Loss percentage at cost price: $1/6 \times 100\% = 16.66\%$

Q.2) Solution

Commission percentage: 2.5%

Total Amount: Rs. 40000

Commission Amount: $2.5/100 \times 40000 = 1/40 \times 40000$ or $40000/40$

Commission Amount: Rs1000

Q.3) Solution:

Marked price: Rs. 8700

Discount: Rs. 900

a. Price paid: Marked price – discount = $8700 - 900$

Price paid: Rs7800

b. Discount as percentage of marked price = $900/8700 \times 100\%$

Discount as percentage of marked price = $9/87 \times 100\% = 900/87 = 10.34\%$

Q.4) Solution:

Cost price: Rs1200

Price increase percentage: 30%

Selling price: $1200 + 30\%$ of 1200

Selling price: $1200 + 30/100 \times 1200$

Selling price: $1200 + (30 \times 12)$ or $1200 + 360 = \text{Rs}1560$

Q.5) Solution:

Original price: Rs.4000

Discount: 25%

New price: $4000 - (25\%$ of 4000)

New price: $4000 - (25/100 \times 4000)$ or $4000 - 1000 = \text{Rs}3000$

Q.6) Solution:

Match ticket price for cardholders: Rs30.80

Actual price: Rs40.70

Discount given to cardholders: $40.70 - 30.80 = \text{Rs}9.90$

Discount percentage: $9.90/40.70 \times 100\%$ or $990/4070 \times 100/100$

Discount percentage: 24.32%



Q.7)Solution:

Price at clearance sale: Rs2000

Original price: X, hence

Now, Rs2000 = 60% of X

Hence, $2000 = \frac{60}{100}$ multiplied by X

X (original price): $2000 \times \frac{100}{60}$ or $\frac{20000}{6}$

X= Rs3333.33

Q.8) Solution:

Usual price: Rs20000

Discount on sale: 15%

(a) Discount given: $\frac{15}{100} \times 2000$

Discount given: $15 \times 20 = \text{Rs}3000$

(b) Payment after discount = $\text{Rs}20000 - \text{Rs}3000 = \text{Rs}17000$

Chapter No: 5**Exercise No: 5.1...****Q.1:**

a) $28 = 7 \times 4, 7 \times 2 \times 2$

b) $100 = 4 \times 25, 2 \times 2 \times 5 \times 5$

c) $99 = 11 \times 9, 11 \times 3 \times 3$

d) $52 = 13 \times 4, 13 \times 2 \times 2$

Q.2:

a) 1,3,7,9, 21,63

b) 1,2,4,11, 22,44

c) 1,2, 37,74

d) 1,2,3,4,6,8,12,24

e) 1,2,4,17,34,68

f) 1,3,13,39

g) 1,2,3,6,9,18

h) 1,2,4,5,8,10,20,40

i) 1,2,3,6,7,14, 21,42

j) 1,3,19, 57

k) 1,2,3,4,6,8,12,16,24,48

l) 1,3,9,27



Q.3:

- | | | |
|---------------------------------------------------|---|-----------------------|
| 1) $32 = 1, 2, 4, 8, 16, 32$ | , | $3 = 6, 9, 12, 15$ |
| 2) $45 = 1, 3, 5, 9, 15, 45$ | , | $4 = 8, 12, 16, 20$ |
| 3) $25 = 1, 2, 5$ | , | $7 = 14, 21, 28, 35$ |
| 4) $39 = 1, 3, 13, 39$ | , | $9 = 18, 27, 36, 45$ |
| 5) $30 = 1, 2, 3, 5, 6, 10, 15, 30$ | , | $5 = 10, 15, 20, 25$ |
| 6) $56 = 1, 2, 4, 7, 8, 14, 28, 56$ | , | $8 = 16, 24, 32, 40$ |
| 7) $49 = 1, 7, 49$ | , | $6 = 12, 18, 24, 30$ |
| 8) $72 = 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72$ | , | $11 = 22, 33, 44, 55$ |
| 9) $95 = 1, 5, 19, 95$ | , | $2 = 2, 4, 6, 8$ |
| 10) $36 = 1, 2, 3, 4, 6, 9, 12, 18, 36$ | , | $10 = 20, 30, 40, 50$ |

Q.4:

- i) 8
- ii) 6
- iii) 8
- iv) 8
- v) 8
- vi) 9

Exercise No: 5.2...**Q.1:**

- a) $2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 7 \times 19 = 21280$
- b) $2 \times 3 \times 5 \times 5 = 150$
- c) $2 \times 2 \times 2 \times 3 \times 3 \times 5 = 360$
- d) $2 \times 2 \times 3 \times 5 \times 5 = 300$
- e) $3 \times 3 \times 5 \times 5 \times 7 = 1575$
- f) $3 \times 3 \times 7 \times 7 = 441$
- g) $2 \times 2 \times 3 \times 3 \times 5 = 180$
- h) $2 \times 3 \times 5 \times 5 \times 7 \times 11 = 11550$
- i) $2 \times 3 \times 5 \times 7 \times 7 = 1470$
- j) $3 \times 3 \times 3 \times 11 = 297$

Q.2:

- a) $4 = 2 \times 2$
 $26 = 2 \times 13$
 $29 = 29$
 $2 \times 2 \times 13 \times 29 = 1508$

- b) $3 = 3$
 $21 = 3 \times 7$
 $26 = 2 \times 13$
 $2 \times 3 \times 7 \times 13 = 546$



c) $8 = 2 \times 2 \times 2$
 $17 = 17$
 $19 = 19$
 $2 \times 2 \times 2 \times 17 \times 19 = 2584$

d) $7 = 7$
 $13 = 13$
 $29 = 29$
 $7 \times 13 \times 29 = 2639$

e) $3 = 3$
 $13 = 13$
 $33 = 3 \times 11$
 $3 \times 11 \times 13 = 429$

f) $2 = 2$
 $14 = 2 \times 7$
 $32 = 2 \times 2 \times 2 \times 2 \times 2$
 $2 \times 2 \times 2 \times 2 \times 2 \times 7 = 224$

g) $5 = 5$
 $25 = 5 \times 5$
 $65 = 5 \times 13$
 $5 \times 5 \times 13 = 325$

h) $6 = 2 \times 3$
 $18 = 2 \times 3 \times 3$
 $76 = 2 \times 2 \times 19$
 $2 \times 2 \times 3 \times 3 \times 19 = 684$

i) $4 = 2 \times 2$
 $24 = 2 \times 2 \times 2 \times 3$
 $21 = 3 \times 7$
 $2 \times 2 \times 2 \times 3 \times 7 = 168$

j) $7 = 7$
 $49 = 7 \times 7$
 $99 = 3 \times 3 \times 11$
 $3 \times 3 \times 7 \times 7 \times 11 = 4851$

Exercise No: 5.3

Find Greatest Common Divisor (GCD or GCF)

a. $\text{GCF}(80, 70, 40) = 10$

Steps:

Prime factorization of the numbers:

$$80 = \underline{2} \times 2 \times 2 \times 2 \times \underline{5}$$

$$70 = \underline{2} \times \underline{5} \times 7$$

$$40 = \underline{2} \times 2 \times 2 \times \underline{5}$$

$$\text{GCF}(80, 70, 40)$$

$$= 2 \times 5$$

$$= 10$$

b. $\text{GCF}(39, 26, 78) = 13$

Steps:

Prime factorization of the numbers:

$$39 = 3 \times \underline{13}$$

$$26 = 2 \times \underline{13}$$

$$78 = 2 \times 3 \times \underline{13}$$

$$\text{GCF}(39, 26, 78)$$

$$= 13$$

c. $\text{GCF}(44, 100, 98) = 2$

Steps:

Prime factorization of the numbers:

$$44 = \underline{2} \times 2 \times 11$$

$$100 = \underline{2} \times 2 \times 5 \times 5$$

$$98 = \underline{2} \times 7 \times 7$$

$$\text{GCF}(44, 100, 98)$$

$$= 2$$

d. $\text{GCF}(77, 21, 98) = 7$

Steps:

Prime factorization of the numbers:

$$77 = \underline{7} \times 11$$

$$21 = 3 \times \underline{7}$$

$$98 = 2 \times \underline{7} \times 7$$

$$\text{GCF}(77, 21, 98)$$

$$= 7$$

e. GCF(77, 21, 98) = 7

Steps:

Prime factorization of the numbers:

$$77 = \underline{7} \times 11$$

$$21 = 3 \times \underline{7}$$

$$98 = 2 \times \underline{7} \times 7$$

$$\text{GCF}(77, 21, 98)$$

$$= 7$$

f. GCF(80, 72, 32) = 8

Steps:

Prime factorization of the numbers:

$$80 = \underline{2} \times \underline{2} \times \underline{2} \times 2 \times 5$$

$$72 = \underline{2} \times \underline{2} \times \underline{2} \times 3 \times 3$$

$$32 = \underline{2} \times \underline{2} \times \underline{2} \times 2 \times 2$$

$$\text{GCF}(80, 72, 32)$$

$$= 2 \times 2 \times 2$$

$$= 8$$

g. GCF(88, 8, 40) = 8

Steps:

Prime factorization of the numbers:

$$88 = \underline{2} \times \underline{2} \times \underline{2} \times 11$$

$$8 = \underline{2} \times \underline{2} \times \underline{2}$$

$$40 = \underline{2} \times \underline{2} \times \underline{2} \times 5$$

$$\text{GCF}(88, 8, 40)$$

$$= 2 \times 2 \times 2$$

$$= 8$$

h. GCF(24, 90, 6) = 6

Steps:

Prime factorization of the numbers:

$$24 = \underline{2} \times 2 \times 2 \times \underline{3}$$

$$90 = \underline{2} \times \underline{3} \times 3 \times 5$$

$$6 = \underline{2} \times \underline{3}$$

$$\text{GCF}(24, 90, 6)$$

$$= 2 \times 3$$

$$= 6$$

i. **GCF(405, 783, 513) = 27**

Steps:

Prime factorization of the numbers:

$$405 = \underline{3} \times \underline{3} \times \underline{3} \times 3 \times 5$$

$$783 = \underline{3} \times \underline{3} \times \underline{3} \times 29$$

$$513 = \underline{3} \times \underline{3} \times \underline{3} \times 19$$

$$\text{GCF}(405, 783, 513)$$

$$= 3 \times 3 \times 3$$

$$= 27$$

j. **GCF(1024, 576) = 64**

Steps:

Prime factorization of the numbers:

$$1024 = \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2}$$

$$576 = \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{3} \times \underline{3}$$

$$\text{GCF}(1024, 576)$$

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$= 64$$

Exercise No: 5.4...

Q.1:

a) $2 \times 2 \times 2 \times 3 \times 5 \times 7$
 $= 2^2 \times 2 \times 3 \times 5 \times 7$
 $= 4 \times 2 \times 3 \times 5 \times 7 = 80$

b) $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5$
 $= 2^2 \times 2^2 \times 2 \times 3^2 \times 5$
 $= 4 \times 4 \times 2 \times 9 \times 5 = 1440$

c) $2 \times 3 \times 3 \times 23$
 $= 2 \times 3^2 \times 23$
 $= 2 \times 9 \times 23 = 414$

d) $2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 5$
 $= 2^2 \times 2 \times 3^2 \times 3 \times 5^2$
 $= 4 \times 2 \times 9 \times 3 \times 25 = 5400$

e) $2 \times 2 \times 2 \times 3 \times 5 \times 17$
 $= 2^2 \times 2 \times 3 \times 5 \times 17$
 $= 4 \times 2 \times 3 \times 5 \times 17 = 2040$

$$\begin{aligned} \text{f)} \quad & 2 \times 2 \times 3 \times 3 \times 11 \\ & = 2^2 \times 3^2 \times 11 \\ & = 4 \times 9 \times 11 = 396 \end{aligned}$$

$$\begin{aligned} \text{g)} \quad & 2 \times 3 \times 5 \times 5 \times 7 \\ & = 2 \times 3 \times 5^2 \times 7 \\ & = 2 \times 3 \times 25 \times 7 = 1050 \end{aligned}$$

$$\begin{aligned} \text{h)} \quad & 2 \times 2 \times 3 \times 5 \times 5 \times 7 \\ & = 2^2 \times 3 \times 5^2 \times 7 \\ & = 4 \times 3 \times 25 \times 7 = 2100 \end{aligned}$$

$$\begin{aligned} \text{i)} \quad & 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 \\ & = 2^3 \times 2 \times 3^3 \times 3 \times 5 \\ & = 4 \times 2 \times 9 \times 3 \times 5 = 1080 \end{aligned}$$

$$\begin{aligned} \text{j)} \quad & 2 \times 2 \times 2 \times 7 \times 7 \\ & = 2^3 \times 2 \times 7^2 \\ & = 4 \times 2 \times 49 = 392 \end{aligned}$$

Q.2: Find HCF (GCF)**a) Solution**

$$48 = \underline{2} \times \underline{2} \times \underline{2} \times 2 \times 3$$

$$56 = \underline{2} \times \underline{2} \times \underline{2} \times 7$$

$$72 = \underline{2} \times \underline{2} \times \underline{2} \times 3 \times 3$$

$$\text{GCF}(48, 56, 72)$$

$$= 2 \times 2 \times 2$$

$$= 8$$

b) Solution

$$198 = \underline{2} \times \underline{3} \times \underline{3} \times 11$$

$$360 = \underline{2} \times 2 \times 2 \times \underline{3} \times \underline{3} \times 5$$

$$\text{GCF}(198, 360)$$

$$= 2 \times 3 \times 3$$

$$= 18$$

c) Solution

$$102 = \underline{2} \times 3 \times \underline{17}$$

$$68 = \underline{2} \times 2 \times \underline{17}$$

$$136 = \underline{2} \times 2 \times 2 \times \underline{17}$$

$$\begin{aligned} & \text{GCF}(102, 68, 136) \\ & = 2 \times 17 \\ & = 34 \end{aligned}$$

d) Solution

$$\begin{aligned} 84 & = \underline{2} \times \underline{2} \times \underline{3} \times 7 \\ 144 & = \underline{2} \times \underline{2} \times 2 \times 2 \times \underline{3} \times 3 \end{aligned}$$

$$\begin{aligned} & \text{GCF}(84, 144) \\ & = 2 \times 2 \times 3 \\ & = 12 \end{aligned}$$

e) Solution

$$\begin{aligned} 120 & = \underline{2} \times \underline{2} \times \underline{2} \times \underline{3} \times 5 \\ 168 & = \underline{2} \times \underline{2} \times \underline{2} \times \underline{3} \times 7 \end{aligned}$$

$$\begin{aligned} & \text{GCF}(120, 168) \\ & = 2 \times 2 \times 2 \times 3 \\ & = 24 \end{aligned}$$

f) Solution

$$\begin{aligned} 632 & = 2 \times 2 \times 2 \times \underline{79} \\ 790 & = 2 \times 5 \times \underline{79} \\ 869 & = 11 \times \underline{79} \end{aligned}$$

$$\begin{aligned} & \text{GCF}(632, 790, 869) \\ & = 79 \end{aligned}$$

g) Solution

$$\begin{aligned} 430 & = 2 \times 5 \times \underline{43} \\ 516 & = 2 \times 2 \times 3 \times \underline{43} \\ 817 & = 19 \times \underline{43} \end{aligned}$$

$$\begin{aligned} & \text{GCF}(430, 516, 817) \\ & = 43 \end{aligned}$$

h) Solution

$$\begin{aligned} 219 & = 3 \times 73 \\ 1321 & = 1321 \\ 2320 & = 2 \times 2 \times 2 \times 2 \times 5 \times 29 \\ 8526 & = 2 \times 3 \times 7 \times 7 \times 29 \end{aligned}$$

$$\begin{aligned} & \text{GCF}(219, 1321, 2320, 8526) \\ & = 1 \end{aligned}$$

i) Solution

$$\begin{aligned} 425 &= \underline{5} \times \underline{5} \times 17 \\ 200 &= 2 \times 2 \times 2 \times \underline{5} \times \underline{5} \\ 100 &= 2 \times 2 \times \underline{5} \times \underline{5} \end{aligned}$$

$$\begin{aligned} & \text{GCF}(425, 200, 100) \\ & = 5 \times 5 \\ & = 25 \end{aligned}$$

j) Solution

$$\begin{aligned} 108 &= \underline{2} \times \underline{2} \times \underline{3} \times \underline{3} \times 3 \\ 288 &= \underline{2} \times \underline{2} \times 2 \times 2 \times 2 \times \underline{3} \times \underline{3} \end{aligned}$$

$$\begin{aligned} & \text{GCF}(108, 288) \\ & = 2 \times 2 \times 3 \times 3 \\ & = 36 \end{aligned}$$

Exercise No: 5.5**Q.1) Solution:**

Largest possible length of each block given dimensions 88 by 32

$$\text{HCF}(88, 52) = 4$$

Steps:

Prime factorization of the numbers:

$$88 = \underline{2} \times \underline{2} \times 2 \times 11$$

$$52 = \underline{2} \times \underline{2} \times 13$$

$$\text{GCF}(88, 52)$$

$$= 2 \times 2$$

$$= 4$$

Q.2) Solution:

Strings lengths are 625cm, 325cm and 426cm.

$$\text{GCF}(625, 325, 426) = 1$$

Steps:

$$625 = 5 \times 5 \times 5 \times 5$$

$$325 = 5 \times 5 \times 13$$

$$426 = 2 \times 3 \times 71$$

$$\text{GCF}(625, 325, 426)$$

$$= 1$$



Q.3) Solution:

12, 18 and 27

$$\text{LCM}(12, 18, 27) = \mathbf{108}$$

Steps:

Prime factorization of the numbers:

$$12 = 2 \times 2 \times 3$$

$$18 = 2 \times 3 \times 3$$

$$27 = 3 \times 3 \times 3$$

$$\text{LCM}(12, 18, 27)$$

$$= 2 \times 2 \times 3 \times 3 \times 3$$

$$= 108 \text{ books to be arranged}$$

Q.4) Solution:

Greatest possible length of rope would be the HCF of 10m (1000cm) and 80cm

Hence,

$$\text{LCM}(1000, 80) = \mathbf{2000}$$

Greatest Common Divisor (GCD) Method Steps:

$$\text{GCD}(1000, 80) = 40$$

$$\text{LCM} = 1000 \times 80 / 40$$

$$= 2000 \text{ cm}$$

Prime factorization of the numbers:

$$1000 = 2 \times 2 \times 2 \times 5 \times 5 \times 5$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$\text{LCM}(1000, 80)$$

$$= 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5$$

$$= 2000 \text{ cm}$$

Q.5) Solution:

Find HCF of 20, 50 and 100

$$\text{GCF}(20, 50, 100) = \mathbf{10}$$

Steps:

Prime factorization of the numbers:

$$20 = \underline{2} \times 2 \times \underline{5}$$

$$50 = \underline{2} \times \underline{5} \times 5$$

$$100 = \underline{2} \times 2 \times \underline{5} \times 5$$

$$\text{GCF}(20, 50, 100)$$

$$= 2 \times 5$$

$$= 10$$



Q.6) Solution:

Find HCF of 21, 35 and 49

$$\text{GCF}(21, 35, 49) = 7$$

Steps:

Prime factorization of the numbers:

$$21 = 3 \times 7$$

$$35 = 5 \times 7$$

$$49 = 7 \times 7$$

$$\text{GCF}(21, 35, 49)$$

$$= 7$$

Q.7) Solution:

Step-by-step explanation:

$$\text{L.C.M} \times \text{H.C.F.} = 1050$$

But there is a relationship between product of l.c.m and h.c.f AND product of numbers

$$\text{Product of numbers} = \text{L.C.M} \times \text{H.C.F.} = 1050$$

$$\text{Therefore product of numbers} = 1050$$

Q.8) Solution

Length= 6m 80cm (680cm) and Breadth= 5m 10cm (510cm) and Height=3m 40cm (340cm)

Longest measure= HCF of three

Hence,

$$680 = 2 \times 2 \times 2 \times 5 \times 17$$

$$510 = 2 \times 3 \times 5 \times 17$$

$$340 = 2 \times 2 \times 5 \times 17$$

$$\text{GCF}(680, 510, 340)$$

$$= 2 \times 5 \times 17$$

$$= 170$$

Q.9) Solution

We need to find common multiple to solve this

$$\text{LCM}(25, 50, 75) = 150$$

$$25 = 5 \times 5$$

$$50 = 2 \times 5 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$\text{LCM}(25, 50, 75)$$

$$= 2 \times 3 \times 5 \times 5$$

$$= 150$$



Q.10) Solution:

We need HCF for this

Hence,

$$925 = 5 \times 5 \times 37$$

$$575 = 5 \times 5 \times 23$$

$$\text{GCF}(925, 575)$$

$$= 5 \times 5$$

$$= 25$$

Chapter No: 6**Exercise No: 6.1****Q.1) Solution:**

One dozen pens cost: Rs1440

One pen cost: Rs1440/12

One pen cost: Rs120

Cost of 15 such pens: Rs120 x 15 = Rs. 1800

Q.2) Solution

Cost of 2kg onions: Rs60

Cost of 1kg: 60/2 = Rs30

Cost of 12kg = Rs30 x 12 = Rs. 360

Q.3) Solution

12 tailors stitch: 15 shirts

1 tailor stitches: 15/12 or 5/4 = 1.25 shirts

28 tailors stitch: 28 x 1.25 = 42 shirts

Q.4) Solution

Speed per hour (60 minutes) is 68km

Distance: 68 x 2 = 136 Km

Q.5) Solution

Payment for 7 days = Rs7700

Payment for 1 day = 7700/7 = Rs1100

Payment for 21 days = Rs1100 x 21 = Rs.23100

Q.6) Solution

Bottles in 8 hours= 960

Bottles in 1 hour = 960/8 = 120

Bottles in 6 hours = 120 x 6 = 720



Q.7 Solution

56 books weigh = 7 kg (7000gms)

Weight of 1 book = $7000/56 = 125$ gms

(a) Weight of 90 books = $125 \text{gms} \times 90 = 11250$ gms

Changing grams back into kilograms, we divide $11250/1000$

Weight of 90 books = 11.25 kg

(b) 7.5kg is 7500gms, and 1 book weighs 125gms

Hence, $7500 \text{gms} / 125 \text{gms} = 60$ books

Q.8) Solution

Distance in two hours: 20km

Distance in 1 hour: 10 km

Time required = $100 \text{km} / 10 \text{km} = 10$ hr

Exercise No: 6.2...

A:

(a) 8 : 20

= 4 : 5

= 2 : 5

(b) 15 : 25

= 3 : 5

(c) 30 : 80

= 15 : 40

= 3 : 8

(d) 36 : 132

= 18 : 66

= 9 : 33

= 3 : 11

(e) 100 : 500

= 50 : 250

= 25 : 125

= 5 : 25

= 1 : 5

$$\begin{aligned} \text{(f)} \quad & 190 : 75 \\ & = 38 : 15 \end{aligned}$$

B:

$$\begin{aligned} \text{(a)} \quad & 0.8 \times 100 : 2.4 \times 100 \\ & = 80 : 240 \\ & = 40 : 120 \\ & = 20 : 60 \\ & = 10 : 30 \\ & = 5 : 15 \\ & = 1 : 3 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad & 0.05 \times 100 : 1.05 \times 100 \\ & = 5 : 105 \\ & = 1 : 21 \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad & 0.0032 \times 100 : 0.0016 \times 100 \\ & = 0.32 \times 100 : 0.16 \times 100 \\ & = 32 : 16 \\ & = 16 : 8 \\ & = 8 : 4 \\ & = 4 : 2 \\ & = 2 : 1 \end{aligned}$$

$$\begin{aligned} \text{(d)} \quad & 0.125 \times 100 : 0.05 \times 100 \\ & = 12.5 \times 100 : 5 \\ & = 1250 : 5 \\ & = 250 : 1 \end{aligned}$$

$$\begin{aligned} \text{(e)} \quad & 0.72 \times 100 : 0.012 \times 100 \\ & = 72 : 1.2 \times 100 \\ & = 72 : 120 \\ & = 36 : 60 \\ & = 18 : 30 \\ & = 9 : 15 \\ & = 3 : 5 \end{aligned}$$



$$\begin{aligned}
 \text{(f)} \quad & 1.6 \times 100 : 0.08 \times 100 \\
 & = 160 : 8 \\
 & = 80 : 4 \\
 & = 40 : 2 \\
 & = 20 : 1
 \end{aligned}$$

C:

$$\begin{aligned}
 \text{(a)} \quad & 2 : 6 : 8 \\
 & = 1 : 3 : 4
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & 3 : 12 : 18 \\
 & = 1 : 4 : 6
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad & 10 : 15 : 20 \\
 & = 2 : 3 : 4
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad & 25 : 75 : 125 \\
 & = 5 : 15 : 25 \\
 & = 1 : 3 : 5
 \end{aligned}$$

$$\begin{aligned}
 \text{(e)} \quad & 0.125 : 2.5 : 0.05 \\
 & 0.125 \times 1000 : 2.5 \times 1000 : 0.05 \times 1000 \\
 & = 125 : 2500 : 50 \\
 & = 125/25 : 2500/25 : 50/25 \\
 & = 5 : 100 : 2
 \end{aligned}$$

$$\begin{aligned}
 \text{(f)} \quad & 0.002 : 0.18 : 0.06 \\
 & 0.002 \times 1000 : 0.18 \times 1000 : 0.06 \times 1000 \\
 & = 2 : 180 : 60 \\
 & = 1 : 90 : 30
 \end{aligned}$$

Exercise No: 6.3...**1: Continued Ratios:****a. 2:6 and 3:5**

$$\begin{array}{cc}
 2 & 6 \\
 & 3 \quad 5
 \end{array}$$

$$\begin{aligned}
 \text{Hence: } & 2 \times 3 : 6 \times 3 : 6 \times 5 \\
 & = 6 : 18 : 30
 \end{aligned}$$

Simplified (divide all by 6): 1:3:5



b. 7:5 and 2:1

$$\begin{array}{ccc} 7 & 5 & \\ & 2 & 1 \end{array}$$

$$\begin{aligned} \text{Hence: } & 7 \times 2: 5 \times 2: 5 \times 1 \\ & = 14:10:5 \end{aligned}$$

c. 9:5 and 3:2

$$\begin{array}{ccc} 9 & 5 & \\ & 3 & 2 \end{array}$$

$$\begin{aligned} \text{HENCE: } & 9 \times 3: 5 \times 3: 5 \times 2 \\ & = 27:15:10 \end{aligned}$$

d. 10:7 and 2:5

$$\begin{array}{ccc} 10 & 7 & \\ & 2 & 5 \end{array}$$

$$\begin{aligned} \text{Hence, } & 10 \times 2: 7 \times 2: 7 \times 5 \\ & = 20:14:30 \end{aligned}$$

$$\text{Simplifying (divide by 2)} = 10:7:15$$

e. 18:7 and 6:5

$$\begin{array}{ccc} 18 & 7 & \\ & 6 & 5 \end{array}$$

$$\begin{aligned} \text{Hence, } & 18 \times 6: 7 \times 6: 7 \times 5 \\ & = 108: 42: 35 \end{aligned}$$

f. 7:6 and 5:4

$$\begin{array}{ccc} 7 & 6 & \\ & 5 & 4 \end{array}$$

$$\begin{aligned} \text{Hence, } & 7 \times 5: 6 \times 5: 6 \times 4 \\ & = 35: 30: 24 \end{aligned}$$

Q2 Ayesha : Azka = 7 : 5 and Azka : Abdulla = 3 : 8

$$\begin{aligned} & 7 : 5 \\ & 3 : 8 \\ & = (7 \times 3): (5 \times 3): (5 \times 8) \\ & = 21: 15: 40 \end{aligned}$$

Q3 Refrigerator: LED = 8:7 and LED: Microwave= 5:2

$$\begin{aligned} & 8 : 7 \\ & 5 : 2 \\ & = (8 \times 5) : (7 \times 5) : (7 \times 2) \\ & = 40:35: 14 \end{aligned}$$



Q4 Class Four: Class Five 9:7 and Class Five: Class Six = 5:2

$$\begin{aligned}
 &9:7 \\
 &5:2 \\
 &= (9 \times 5) : (7 \times 5) : (7 \times 2) \\
 &= 45: 35: 14
 \end{aligned}$$

Q5 Ahmed: Ahad = 7:3 and Ahad: Fatima= 5:8

$$\begin{aligned}
 &7:3 \\
 &5: 8 \\
 &= (7 \times 5) : (3 \times 5) : (3 \times 8) \\
 &= 35: 15: 24
 \end{aligned}$$

Exercise No: 6.4...**Q.1) Solution:**

Total: 600 students

Boys to girls= 3:5

Girls= $\frac{3}{5} \times 600$ and Boys= $\frac{2}{5} \times 600$

Hence, girls = 225, boys = 375

Q.2) Solution:

Pennies to Nickels = 5:3 or $\frac{5}{3}$

Number of Nickels = 30

Number of Pennies = $5 \times 10 : 3 \times 10$

Number of Pennies: 50

Total = $50 + 30 = 80$

Q.3) Solution

Changing into mixed fraction first, we have

$$3 \frac{2}{3} = (3 \times 3) + \frac{2}{3} = \frac{11}{3}$$

$$\text{And } 7 \frac{1}{3} = (3 \times 7) + \frac{1}{3} = \frac{22}{3}$$

Now we have $\frac{11}{3} : \frac{22}{3}$

Also could be expressed as: $\frac{11}{3}$ divide by $\frac{22}{3}$

Simplifying, we can multiply both by 3, so we have: 11:22

Simplified $\frac{11}{22}$ further we have 1:2

Q.4) Solution:

Total members = 25

Males= 11

Hence males to total ratio is $\frac{11}{25}$



Q.5) Solution:

boys=15 and girls=12

Boy: Girl

15:12 or $15/12$ or $5/4$ (when divide by 3)

Boy to Girl = 5:4

Girl to boy: 4:5

Q.6) Solution:

4 blue triangles: 12 yellow triangles

Total triangles: $4 + 12 = 16$

Blue to all: 4:16 or $\frac{1}{4}$

Q.7) Solution

Hearts: 2, Star=1 and Circles=26

Circles to hearts= 26:2 or 13:1

Q.8)

- (a) $42 : 12 = 21 : 6 = 7 : 2$
 (b) $49 : 21 = 7 : 3$
 (c) $12 : 32 = 6 : 16 = 3 : 8$
 (d) $42 : 54 = 21 : 27 = 7 : 9$
 (e) $45 : 20 = 9 : 4$
 (f) $15 : 24 = 5 : 8$
 (g) $12 : 8 = 6 : 4 = 3 : 2$
 (h) $2 : 18 = 1 : 9$
 (i) $35 : 28 = 5 : 4$
 (j) $20 : 36 = 10 : 18 = 5 : 9$
 (k) $14 : 63 = 2 : 9$
 (l) $27 : 36 = 9 : 12 = 3 : 4$
 (m) $70 : 10 = 14 : 2 = 7 : 1$
 (n) $10 : 60 = 5 : 30 = 1 : 6$
 (o) $42 : 30 = 21 : 15 = 7 : 5$
 (p) $48 : 42 = 24 : 21 = 8 : 7$
 (q) $90 : 10 = 45 : 5 = 9 : 1$
 (r) $9 : 18 = 3 : 6 = 1 : 2$
 (s) $5 : 20 = 1 : 4$
 (t) $64 : 72 = 32 : 36 = 16 : 18 = 8 : 9$

Q.9)

- (a) yes
 (b) no
 (c) yes
 (d) yes
 (e) yes
 (f) yes



Q.10)

- (a) 18
- (b) 35
- (c) 8
- (d) 4
- (e) 5
- (f) 1
- (g) 5, 1
- (h) 30,3

Q.11)

- a) 49, 9,18
- b) 15,27, 36
- c) 26,65, 91
- d) 33,44,4

Exercise No: 6.5...**Q.1:**

$$\begin{aligned} \text{(a)} \quad & 7 \times 9 = 6 \times 4 \\ & = 63 = 24 \\ & = 7 : 6 > 4 : 9 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad & 1 \times 22 = 7 \times 5 \\ & = 22 = 35 \\ & = 1 : 7 < 5 : 22 \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad & 11 \times 5 = 14 \times 2 \\ & = 55 = 28 \\ & = 11 : 14 > 1 : 5 \end{aligned}$$

$$\begin{aligned} \text{(d)} \quad & 3 \times 15 = 11 \times 2 \\ & = 45 = 22 \\ & = 3 : 11 > 2 : 15 \end{aligned}$$

$$\begin{aligned} \text{(e)} \quad & 10 \times 9 = 5 \times 14 \\ & = 90 = 70 \\ & = 10 : 5 > 14 : 9 \end{aligned}$$

$$\begin{aligned} \text{(f)} \quad & 1 \times 27 = 2 \times 13 \\ & = 27 = 26 \\ & = 1 : 2 > 13 : 27 \end{aligned}$$

Q.2:

- (a) 9:16 smaller pair
- (b) 15:16 smaller pair
- (c) 6:13 smaller pair
- (d) 5:9 smaller pair
- (e) 10:7 smaller pair
- (f) 2:9 smaller pair

Q.3:

- (a) 5:8 greater pair
- (b) 8:13 greater pair
- (c) 15:10 greater pair
- (d) 2:5 greater pair
- (e) 9:16 greater pair
- (f) 7:13 greater pair

Chapter No:7**Exercise NO:7.1...**

	Variable	co-efficient	power
(i)	X	2	9
(ii)	y z	1	2
(iii)	p q	-8	7,2
(iv)	q	-3	1
(v)	x,y	15	2,5

Exercise No: 7.2...**A:**

1) $6m - 3n + 7$

Variable: m and n

Coefficient: 6 and (-3)

Power: 1

2) $5d + 4e - 3$

Variable: d and e

Coefficient: 5 and 4

Power: 1

3) $3x + 6y - x + 7$

Variable: x and y

Coefficient: 3 and 6 and (-1)

Power:1

4) $4m + 7n - 2n + 8$

Variable: m and n

Coefficient: 4 and 7 and (-2)

Power: 1

5) $6c - 3d - 2c + d + 7$

Variable: c and d

Coefficient: 6, (-3), (-2), 1

Power: 1

6) $6x + 4y + z = 3$

Variable: x, y and z

Coefficient: 6, 4, and 1

Power: 1

B:if $a = 4$ find the value of $3a + 7$

$$= 3(4) + 7$$

$$= 12 + 7 = 19$$

a) if $d = 4$, find the value of $5d + 6$

$$= 5(4) + 6$$

$$= 20 + 6 = 26$$

b) if $x = 3$, $y = 2$, find the value of $4x + y + 5$

$$= 4(3) + 2 + 5$$

$$= 12 + 2 + 5 = 19$$

c) if $m = 4$, $n = 4$, find the value of $3m + 2n + 4$

$$= 3(4) + 2(4) + 4$$

$$= 12 + 8 + 4 = 24$$

d) if $p = 2$, $q = 5$, $r = 1$, find the value of $4p + q + 3r + 8$

$$= 4(2) + 5 + 3(1) + 8$$

$$= 8 + 5 + 3 + 8 = 24$$

e) if $t = 4$, $u = 3$, $v = 2$, find the value of $2t + 3u + 4v + 7$

$$= 2(4) + 3(3) + 4(2) + 7$$

$$= 8 + 9 + 8 + 7 = 32$$



C:

$$\begin{aligned} \text{a) } & 3d - 9 && \text{if } d = 6 \\ & = 3(6) - 9 \\ & = 18 - 9 = 9 \end{aligned}$$

$$\begin{aligned} \text{b) } & 5e - 11 && \text{if } e = 4 \\ & = 5(4) - 11 \\ & = 20 - 11 = 9 \end{aligned}$$

$$\begin{aligned} \text{c) } & 4f - 2g - 5 && \text{if } f = 3, g = 2 \\ & = 4(3) - 2(2) - 5 \\ & = 12 - 4 - 5 = 3 \end{aligned}$$

$$\begin{aligned} \text{d) } & 5m - 3n - 7 && \text{if } m = 4, n = 9 \\ & = 5(4) - 3(9) - 7 \\ & = 20 - 27 - 7 = -14 \end{aligned}$$

$$\begin{aligned} \text{e) } & 2x - 2y - x - 2y - 8 && \text{if } x = 3, y = 2 \\ & = 2(3) - 2(2) - 3 - 2(2) - 8 \\ & = 6 - 4 - 3 - 4 - 8 = -13 \end{aligned}$$

$$\begin{aligned} \text{f) } & 3p - 3q - 3r - 9 && \text{if } p = 6, q = 1, r = 2 \\ & = 3(6) - 3(1) - 3(2) - 9 \\ & = 18 - 3 - 6 - 9 = 0 \end{aligned}$$

D:

$$\begin{aligned} \text{a) } & 8(4st) && \text{if } s = 6, t = 3 \\ & = 8(4 \times 6 \times 3) \\ & = 8(72) = 576 \end{aligned}$$

$$\begin{aligned} \text{b) } & (6g)(5h) && \text{if } g = 7, h = 3 \\ & = (6 \times 7)(5 \times 3) \\ & = 42 \times 15 = 630 \end{aligned}$$

$$\begin{aligned} \text{c) } & 5(2p)(q) && \text{if } p = 4, q = 8 \\ & = 5(2 \times 4)(8) \\ & = 5 \times 8 \times 8 = 320 \end{aligned}$$

$$\begin{aligned} \text{d) } & 2(5y)(3x) && \text{if } y = 7, x = 5 \\ & = 2(5 \times 7)(3 \times 5) \\ & = 2 \times 35 \times 15 = 1050 \end{aligned}$$



$$\begin{aligned} \text{e) } & (2xy)(2yz)(2zx) \quad \text{if } x = 7, y = 5, z = 4 \\ & = (2 \times 7 \times 5)(2 \times 5 \times 4)(2 \times 4 \times 7) \\ & = 70 \times 40 \times 56 = 156800 \end{aligned}$$

$$\begin{aligned} \text{f) } & 7(3pq)(3rs) \quad \text{if } p = 5, q = 3, r = 4, s = 6 \\ & = 7(3 \times 5 \times 3)(3 \times 4 \times 6) \\ & = 7 \times 45 \times 72 = 22680 \end{aligned}$$

E:

$$\begin{aligned} \text{a) } & 42t/x \quad \text{if } x = 6, t = 4 \\ & = 42 \times 4 / 6 = 28 \end{aligned}$$

$$\begin{aligned} \text{b) } & 38x/y \quad \text{if } x = 7, y = 14 \\ & = 38 \times 7 / 14 = 19 \end{aligned}$$

$$\begin{aligned} \text{c) } & 26m(4n)/k \quad \text{if } m = 5, n = 8, k = 32 \\ & = 26 \times 5(4 \times 8) / 32 \\ & = 130 \times 32 / 32 = 130 \end{aligned}$$

$$\begin{aligned} \text{d) } & 18pqr/t \quad \text{if } p = 6, q = 7, r = 3, t = 28 \\ & = 18(6 \times 7 \times 3) / 28 \\ & = 18 \times 126 / 28 \\ & = 2268 / 28 = 81 \end{aligned}$$

$$\begin{aligned} \text{e) } & (16a)(8b)(5c)/de \quad \text{if } a = 8, b = 3, c = 4, d = 8, e = 6 \\ & = (16 \times 8)(8 \times 3)(5 \times 4) / 8 \times 6 \\ & = 128 \times 24 \times 20 / 48 = 1280 \end{aligned}$$

$$\begin{aligned} \text{f) } & (22s)(4t)(3u)/6v \quad \text{if } s = 2, t = 11, u = 6, v = 11 \\ & = (22 \times 2)(4 \times 11)(3 \times 6) / 6 \times 11 \\ & = 44 \times 44 \times 18 / 66 = 528 \end{aligned}$$

Exercise No: 7.3...

$$\begin{aligned} \text{a) } & 2(3^3) + 3 + 7 \\ & = 2(27) + 3 + 7 \\ & = 54 + 3 + 7 = 64 \end{aligned}$$

$$\begin{aligned} \text{b) } & 5(4^2) - 2(4^2) + 6 \\ & = 5(16) - 2(16) + 6 \\ & = 80 - 32 + 6 = 54 \end{aligned}$$



$$\begin{aligned}
 \text{c) } & 6a^2 + 2b^3 - a^2 - 5 \\
 &= 6(3^2) + 2(2^3) - 3^2 + 5 \\
 &= (6 \times 9) + (2 \times 8) - 9 + 5 \\
 &= 54 + 16 - 9 + 5 = 66
 \end{aligned}$$

$$\begin{aligned}
 \text{d) } & 6e^3 + 3f^4 - 2e^2 + 2f + 4 \\
 &= 6(3^3) + 3(4^4) - 2(3^2) + 2 \times 4 + 4 \\
 &= (6 \times 27) + (3 \times 256) - (2 \times 9) + 8 + 4 \\
 &= 162 + 768 - 18 + 8 + 4 = 924
 \end{aligned}$$

$$\begin{aligned}
 \text{e) } & 4(2s)^3(3t)^2 \\
 &= 4(2 \times 3)^3(3 \times 4)^2 \\
 &= 4(8 \times 27)(9 \times 16) \\
 &= 4 \times 216 \times 144 = 124416
 \end{aligned}$$

$$\begin{aligned}
 \text{f) } & (2x + y)^2(2y - 2z)^5(2z - 3x)^4 \\
 &= (2 \times 1 + 2)^2(2 \times 2 - 2 \times 2)^5(2 \times 2 - 3 \times 1)^4 \\
 &= (2 + 2)^2(4 - 4)^5(4 + 3)^4 \\
 &= (4)^2(0)^5(7)^4 \\
 &= 16 \times 0 \times 2401 = 0
 \end{aligned}$$

$$\begin{aligned}
 \text{g) } & 7(3x + v)^4(3w + 2x)^2 \\
 &= 7(3 \times 1 + 2)^4(3 \times 0 + 2 \times 3)^2 \\
 &= 7(3 + 2)^4(0 + 6)^2 \\
 &= 7(5)^4(6)^2 \\
 &= 7 \times 625 \times 36 = 157500
 \end{aligned}$$

Exercise No:7.4...

- a) True
- b) False
- c) True
- d) False
- e) False
- f) False
- g) False
- h) False



Exercise No: 7.5...**Q.1**

$$\begin{aligned} \text{a) } x + 8 &= 15 \\ &= x = 15 - 8 \\ &= x = 7 \end{aligned}$$

$$\begin{aligned} \text{b) } x - 7 &= 1 \\ &= x = 1 + 7 \\ &= x = 8 \end{aligned}$$

$$\begin{aligned} \text{c) } x + 3 / 5 &= 2 \\ &= x + 3 = 5 \times 2 \\ &= x + 3 = 10 \\ &= x = 10 - 3 \\ &= x = 7 \end{aligned}$$

$$\begin{aligned} \text{d) } x - 2 / 3 &= 5 \\ &= x - 2 = 5 \times 3 \\ &= x - 2 = 15 \\ &= x = 15 + 2 \\ &= x = 17 \end{aligned}$$

$$\begin{aligned} \text{e) } x + 2 / 5 &= 3 / 5 \\ &= 5(x + 2) = 3 \times 5 \\ &= 5x + 10 = 15 \\ &= 5x = 15 - 10 \\ &= 5x = 5 \\ &= x = 5 \end{aligned}$$

$$\begin{aligned} \text{f) } x - 1 / 5 &= 3 / 10 \\ &= 10(x - 1) = 3 \times 5 \\ &= 10x - 10 = 15 \\ &= 10x = 15 + 10 \\ &= 10x = 25 \\ &= x = 25 / 10 \\ &= x = 5 / 2 \end{aligned}$$

Q.2

$$\begin{aligned} \text{a) } 5y + 3 &= 13 \\ &= 5y = 13 - 3 \\ &= 5y = 10 \\ &= y = 10 / 5 \\ &= y = 2 \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & 8y + 2 = 18 \\ & = 8y = 18 - 2 \\ & = 8y = 16 \\ & = y = 16 / 8 \\ & = y = 2 \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & y / 3 + 5 = 10 \\ & = y / 3 = 10 - 5 \\ & = Y / 3 = 5 \\ & = y = 3 \times 5 \\ & = y = 15 \end{aligned}$$

$$\begin{aligned} \text{d)} \quad & 2y / 3 - a = 7 \\ & = 2y / 3 = 7 + a \\ & = 2y = 3(7 + a) \\ & = 2y = 21 + a \\ & = y = 21 + a / 2 \end{aligned}$$

$$\begin{aligned} \text{e)} \quad & 8 / y + 7 = 9 \\ & = 8 / y = 9 - 7 \\ & = 8 / y = 2 \\ & = 2y = 8 \\ & = y = 8 / 2 \\ & = Y = 4 \end{aligned}$$

$$\begin{aligned} \text{f)} \quad & 25 / y - 2 = 3 \\ & = 25 / y = 3 + 2 \\ & = 25 / y = 5 \\ & = 5y = 25 \\ & = y = 25 / 5 \\ & = y = 5 \end{aligned}$$

Q.3

$$\begin{aligned} \text{a)} \quad & 5x + 8 = 3x + 20 \\ & = 5x - 3x = 20 - 8 \\ & = 2x = 12 \\ & = x = 12 / 2 \\ & = x = 6 \end{aligned}$$

$$\begin{aligned}
 \text{b)} \quad & 10y - 3 = 7y + 6 \\
 = & 10y - 7y = 6 + 3 \\
 = & 3y = 9 \\
 = & y = 9 / 3 \\
 = & y = 3
 \end{aligned}$$

$$\begin{aligned}
 \text{c)} \quad & 8y + 8 = 7y \\
 = & 8y - 7y = -8 \\
 = & y = -8
 \end{aligned}$$

$$\begin{aligned}
 \text{d)} \quad & 13m + 5 = 12m - 2 \\
 = & 13m - 12m = -2 - 5 \\
 = & m = -7
 \end{aligned}$$

$$\begin{aligned}
 \text{e)} \quad & 25p + 20 = -2 \\
 = & 25p - 12p = -2 - 20 \\
 = & 13p = -22 \\
 = & p = -22 / 13
 \end{aligned}$$

$$\begin{aligned}
 \text{f)} \quad & 205 + 20w = 5w + 135 \\
 = & 20w - 5w = 135 - 205 \\
 = & 15w = 70 \\
 = & w = 70 / 15 \\
 = & w = 14
 \end{aligned}$$

Q.4

$$\begin{aligned}
 \text{a)} \quad & 3(5x - 8) = x + 4 \\
 = & 15x - 24 = x + 4 \\
 = & 15x - x = 4 + 24 \\
 = & 14x = 28 \\
 = & x = 28 / 14 \\
 = & x = 2
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} \quad & 5(-15 + 3y) \\
 = & -75 + 15y \\
 = & y = -75 / 15 \\
 = & y = -5
 \end{aligned}$$

$$\begin{aligned}
 \text{c)} \quad & 15(2x - 8) = 7(4x + 12) \\
 = & 30x - 120 = 28x + 84 \\
 = & 30x - 28x = 84 + 120 \\
 = & 2x = 204 \\
 = & x = 204 / 2 \\
 = & x = 102
 \end{aligned}$$



$$\begin{aligned}
 \text{d)} \quad & 2x - 9 / 3 = 5x - 8 / 8 \\
 = & 8(2x - 9) = 3(5x - 8) \\
 = & 16x - 72 = 15x - 24 \\
 = & 16x - 15x = -24 + 72 \\
 = & x = 48
 \end{aligned}$$

$$\begin{aligned}
 \text{e)} \quad & x + 3 / 2 = 5x + 6 / 6 \\
 = & 6(x + 3) = 2(5x + 6) \\
 = & 6x + 18 = 10x + 12 \\
 = & 6x - 10x = 12 - 18 \\
 = & -4x = -6 \\
 = & x = 6 / 4 \\
 = & x = 3 / 2
 \end{aligned}$$

$$\begin{aligned}
 \text{f)} \quad & 13 - 3x / 7 = 7x - 7 / 2 \\
 = & 2(13 - 3x) = 7(7x - 7) \\
 = & 26 - 6x = 49x - 49 \\
 = & -6x - 49x = -49 - 26 \\
 = & -55x = -75 \\
 = & x = 75 / 55 \\
 = & x = 15 / 11
 \end{aligned}$$

Chapter No:8

Exercise No: 8.1

Students will done by themselves with the help of teacher

Exercise No: 8.2

A:

- | | |
|--------|--------|
| 1) 135 | 4) 60 |
| 2) 100 | 5) 10 |
| 3) 75 | 6) 175 |

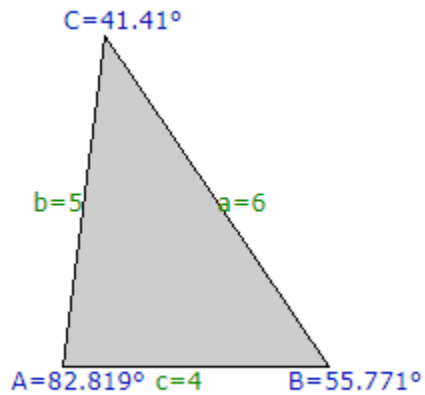
B:

- | | |
|-------|-------|
| 1) 80 | 4) 5 |
| 2) 70 | 5) 15 |
| 3) 45 | 6) 82 |



Exercise No: 8.3...

1. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.

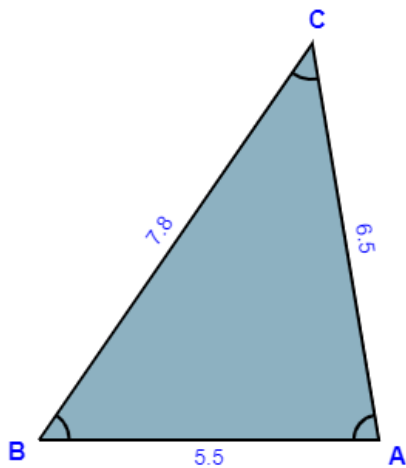


Side $a = 6$ cm

Side $b = 5$ cm

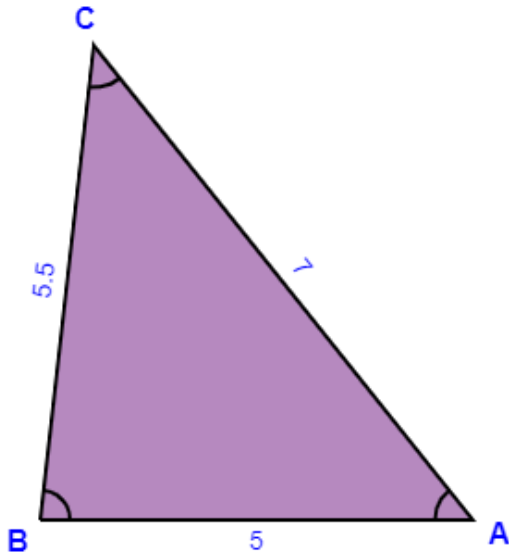
Side $c = 4$ cm

2. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



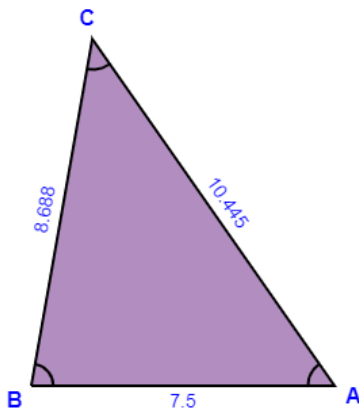
Sides: $a = 7.8$ $b = 6.5$ $c = 5.5$

3. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



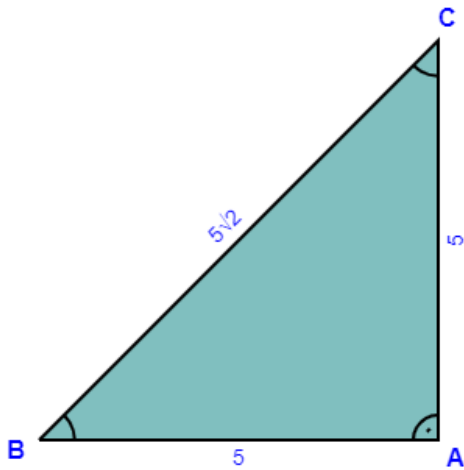
Sides: $a = 5.5$ $b = 7$ $c = 5$

4. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



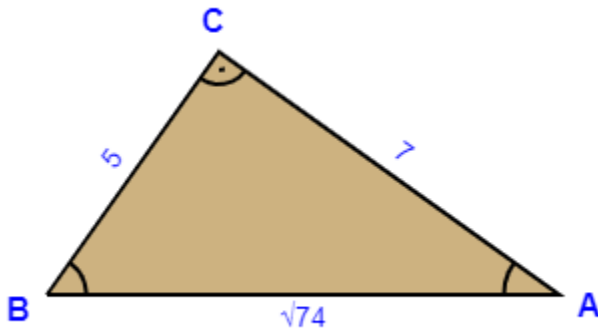
Sides: $a = 8.688$ $b = 10.445$ $c = 7.5$

5. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



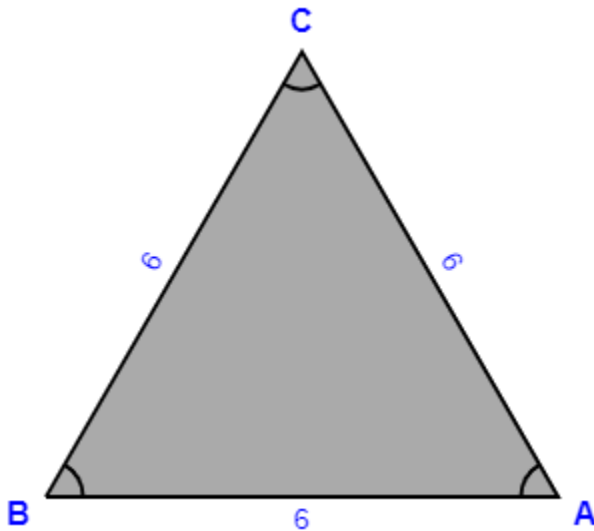
Sides: $a = 7.071$ $b = 5$ $c = 5$

6. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



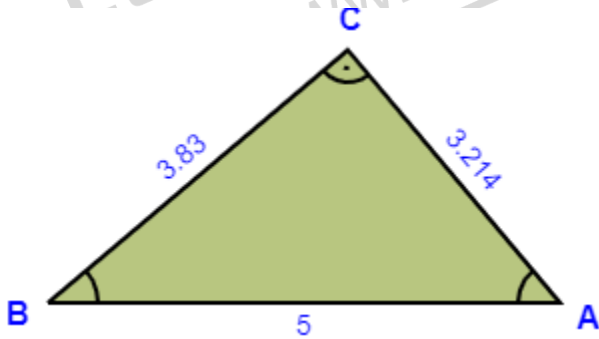
Sides: $a = 5$ $b = 7$ $c = 8.602$

7. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



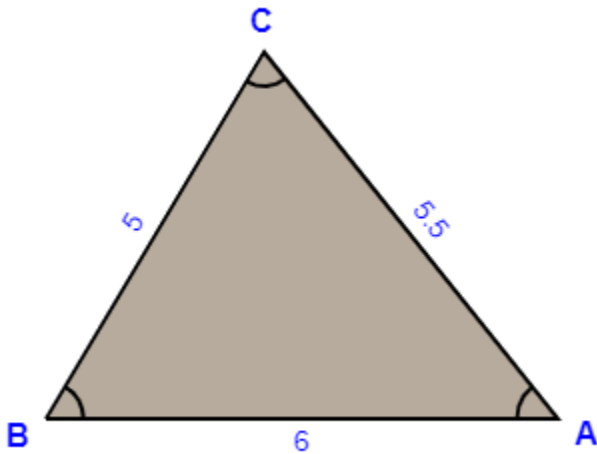
Sides: $a = 6$ $b = 6$ $c = 6$

8. Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



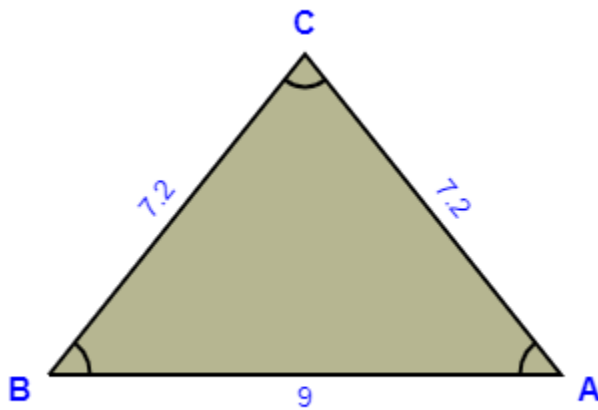
Sides: $a = 3.83$ $b = 3.214$ $c = 5$

9 Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



Sides: $a = 5$ $b = 5.5$ $c = 6$

10 Figure generated from computerized calculation. Students must do it with the help of their geometry tools.



Sides: $a = 7.2$ $b = 7.2$ $c = 9$

Exercise No: 8.4...**Q.1** Students will done by themselves with the help of teacher**Q.2****Using formula: $r = d/2$**

a) $d = 2.8/2, d = 1.4$

b) $d = 3.2/2, d = 1.6$

c) $d = 4.2/2, d = 2.1$

d) $d = 7/2, d = 3.5$

Q.3**Using formula for Circumference : $C = 2 \pi r$** **Using formula for Area of the Circle : $A = \pi r^2$**

a) $C = 2(3.14)(10) = C = 62.84,$
 $A = (3.14)(10)^2 = A = 314.154$

b) $C = 2(3.14)(7.5) = C = 47.1$
 $A = (3.14)(7.5)^2 = A = 176.71$

c) $C = 2(3.14)(18) = C = 113.04,$
 $A = (3.14)(18)^2 = A = 1017.36$

d) $C = 2(3.14)(1.7) = C = 10.676$
 $A = (3.14)(1.7)^2 = A = 9.08$

e) $C = 2(3.14)(19.8) = C = 124.344$
 $A = (3.14)(19.8)^2 = A = 1231.00$

f) $C = 2(3.14)(0.5) = C = 3.14$
 $A = (3.14)(0.5)^2 = A = 0.785$

Q.4**Using formula for Radius : $r = d/2$** **Using formula for Circumference : $C = 2 \pi r$** **Using formula for Area of the Circle : $A = \pi r^2$**

a) $r = 25/2, = r = 12.5$
 $C = 2(3.14)(12.5) = C = 78.5,$
 $A = (3.14)(12.5)^2 = A = 490.87$

b) $r = 1.5 / 2 = r = 0.75$
 $C = 2(3.14)(0.75) = C = 4.71$
 $A = (3.14)(0.75)^2 = A = 1.766$



$$\begin{aligned} \text{c) } r &= 30.5 / 2 & = r = 15.25 \\ C &= 2(3.14)(15.25) & = C = 95.77 \\ A &= (3.14)(15.25)^2 & = A = 730.24 \end{aligned}$$

$$\begin{aligned} \text{d) } r &= 105 / 2 & = r = 52.5 \\ C &= 2(3.14)(52.5) & = C = 329.7 \\ A &= (3.14)(52.5)^2 & = A = 8654.62 \end{aligned}$$

Q. 5. A car travelled on a circular path of radius 52cm and completes one rotation. Find the distance travelled by the car.

Solution:

Rotation is the circumference of circle,

$$\text{Total distance} = \text{circumference of the circle} = 2\pi r = 2(22/7)(52)\text{cm} = 326.8\text{cm}$$

Q. 6. The circumference of the circle is 100cm. Find the radius and diameter of the circle.

Circumference, $C = 100$ in

Then: $r = C/2\pi$ and $d = C/\pi$

Or, $r = 100/2\pi$ and $d = 100/\pi$

Therefore, Radius, $r = 15.91549430919$ in

Diameter, $d = 31.830988618379$ in

Q.7

Using formula for Circumference : $C = 2 \pi r$

$$\begin{aligned} \text{a) } 900 &= 2 (22/7) r \\ 900 \times 7 &= 2 \times 22 r \\ 6300 &= 44r \\ 6300/44 &= r \\ r &= 143.18 \end{aligned}$$

$$\begin{aligned} \text{b) } 170 &= 2 (22/7) r \\ 170 \times 7 &= 2 \times 22 r \\ 1190 &= 44r \\ 1190/44 &= r \\ r &= 27.045 \end{aligned}$$

$$\begin{aligned} \text{c) } 900 &= 2 (22/7) r \\ 900 \times 7 &= 2 \times 22 r \\ 6300 &= 44r \\ 6300/44 &= r \\ r &= 143.18 \end{aligned}$$



$$\begin{aligned} \text{d) } 1500 &= 2 \left(\frac{22}{7}\right) r \\ 1500 \times 7 &= 2 \times 22 r \\ 10500 / 44 &= r \\ r &= 238.636 \end{aligned}$$

Q.8

Using formula for Area of the Circle : $A = \pi r^2$

Find the radius of the circle from given circumference measurement ($c = 2\pi r$)

$$\begin{aligned} \text{a) } 250 &= 22/7 r^2 \\ 250 \times 7 &= 22 r^2 \\ 1750 / 22 &= r^2 \\ r^2 &= 79.545 \\ r &= 8.92 \text{ans} \end{aligned}$$

$$\begin{aligned} \text{b) } 950 &= 22 / 7 r^2 \\ 950 \times 7 &= 22 r^2 \\ 6650 / 22 &= r^2 \\ r^2 &= 302.27 \\ r &= 17.38 \end{aligned}$$

$$\begin{aligned} \text{c) } 310 &= 22 / 7 r^2 \\ 310 \times 7 &= 22 r^2 \\ 2170 / 22 &= r^2 \\ r^2 &= 96.63 \\ r &= 9.93 \end{aligned}$$

$$\begin{aligned} \text{d) } 730 &= 22 / 7 r^2 \\ 730 \times 7 &= 22 r^2 \\ 5110 / 22 &= r^2 \\ r^2 &= 232.27 \\ r &= 15.24 \end{aligned}$$

Exercise No: 8.5

1. Draw a symmetry line in the shapes.

A. Students must do it on their own using the geometry tools.

2. Complete the picture or shapes.

A. Students must do it on their own using the geometry tools.

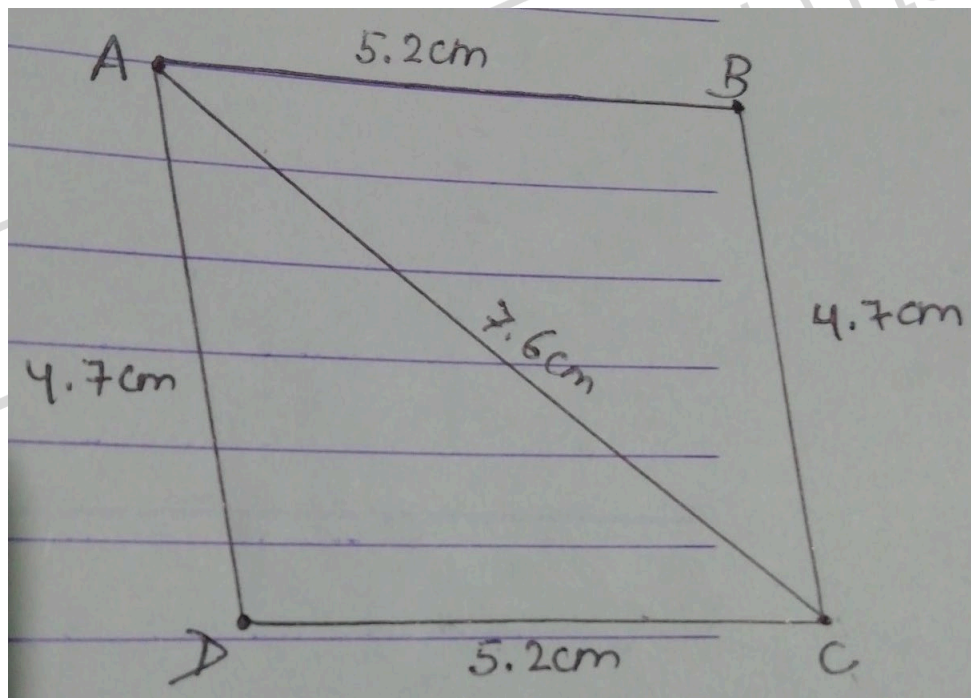


Exercise No: .8.6**1. Write the name of each quadrilateral:**

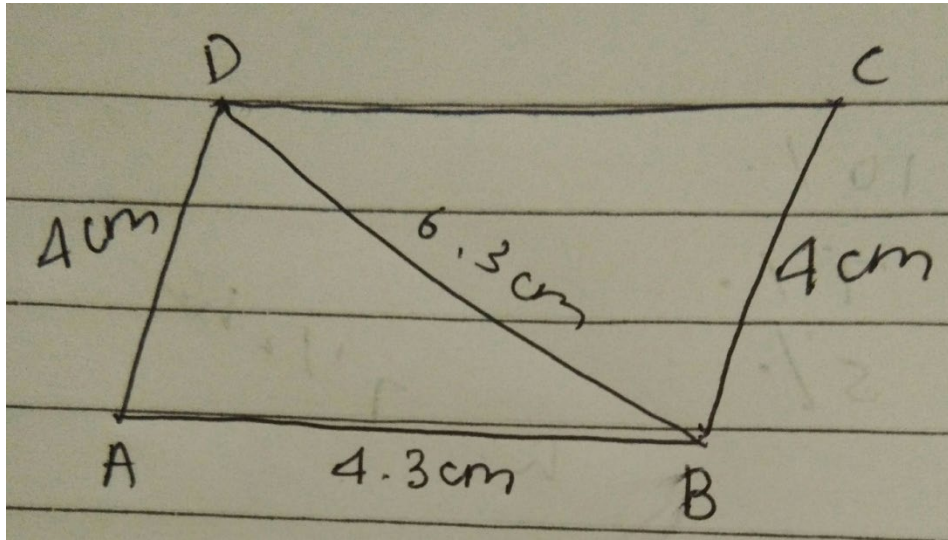
1. Rectangle
2. Kite
3. Square
4. Rhombus
5. Parallelogram
6. Rectangle
7. Trapezoid
8. Rhombus

2. Solve them with construction of quadrilaterals:

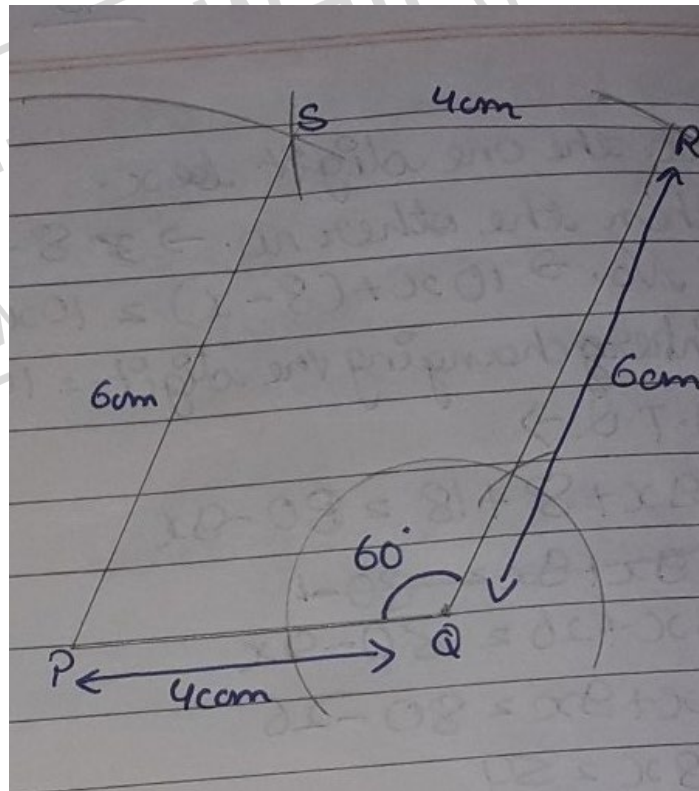
1. Parallelogram ABCD with $AB=5.2\text{cm}$, $BC=4.7\text{cm}$ and $AC=7.6\text{cm}$



2. Parallelogram ABCD with $AB=4.3\text{cm}$, $AD=4\text{cm}$ and $BD=6.8\text{cm}$

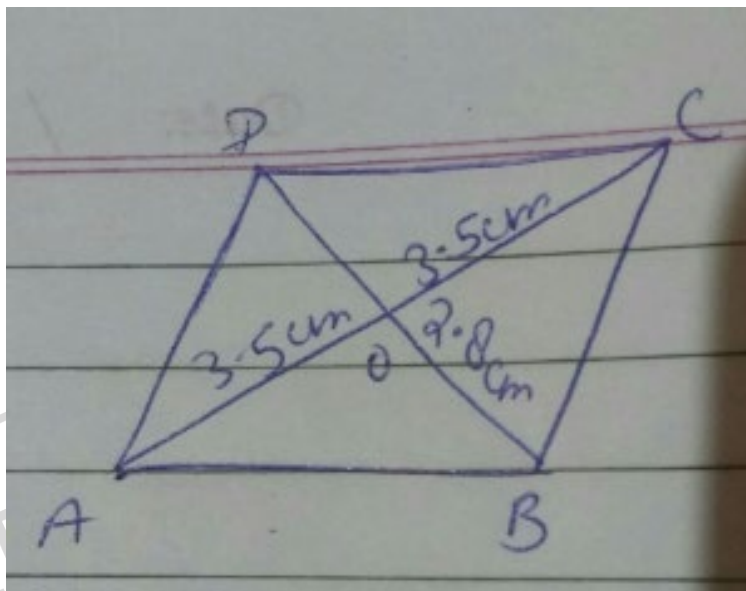


3. Parallelogram PQRS with $QR=6\text{cm}$, $PQ=4\text{cm}$ and Angle $PQR=60^\circ$

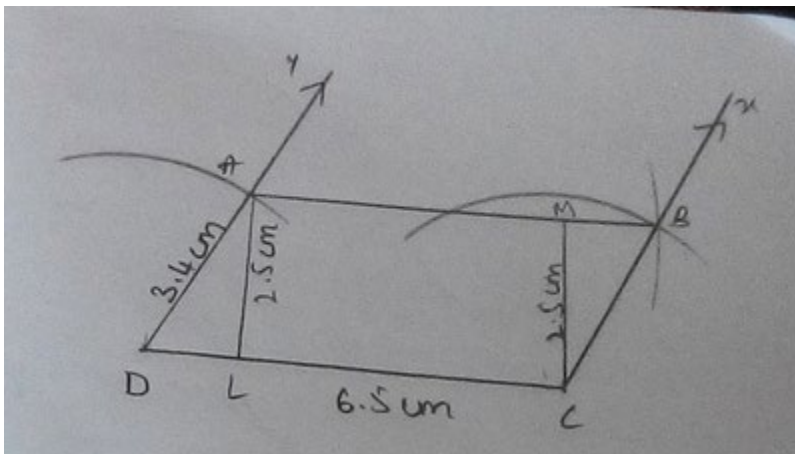


4. Parallelogram, one side is 4.4cm and diagonals are 5.6cm and 7cm.

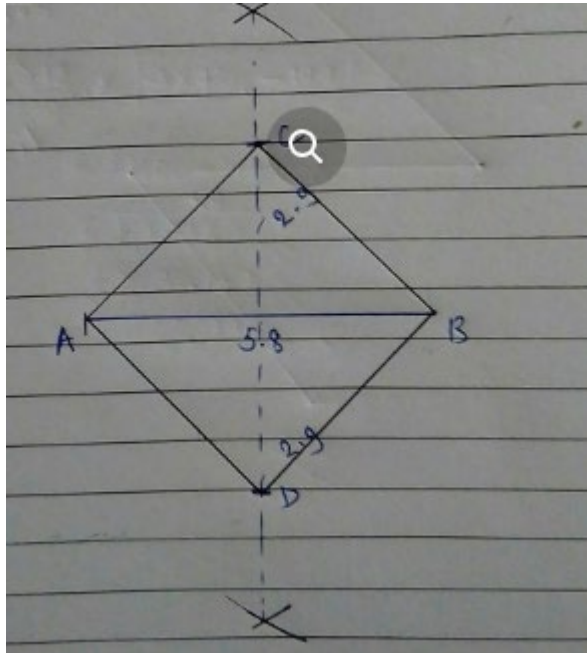
- i. Construct a line segment AB of length 4.4cm.
- ii. As we know that diagonals of parallelogram bisect each other, so at point A, mark an arc taking 3.5cm as radius.
- iii. Now from B, mark an arc taking 2.8cm as radius. Name the point of intersection as 'O'.
Join OA and OB.
- iv. Extend AO and BO. From O, mark an arc on extended ray AO of radius 3.5cm. Name it as C.
- v. Similarly mark an arc on extended ray BO of radius 2 cm. Name it as D.
- vi. Join AD, DC and BC.
ABCD is required parallelogram with AC = 7cm and BD = 5.6cm.



5. Parallelogram ABCD with AB=6.5cm, AC=3.4cm and altitude from A is 2.5cm.



6. Square with diagonals measuring 5.8cm

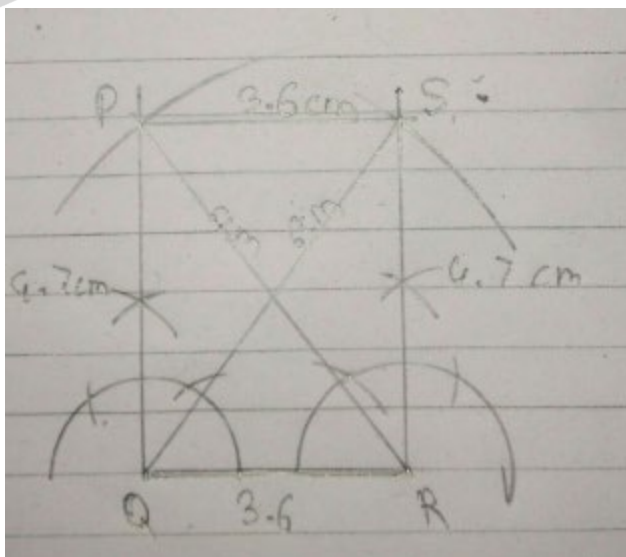


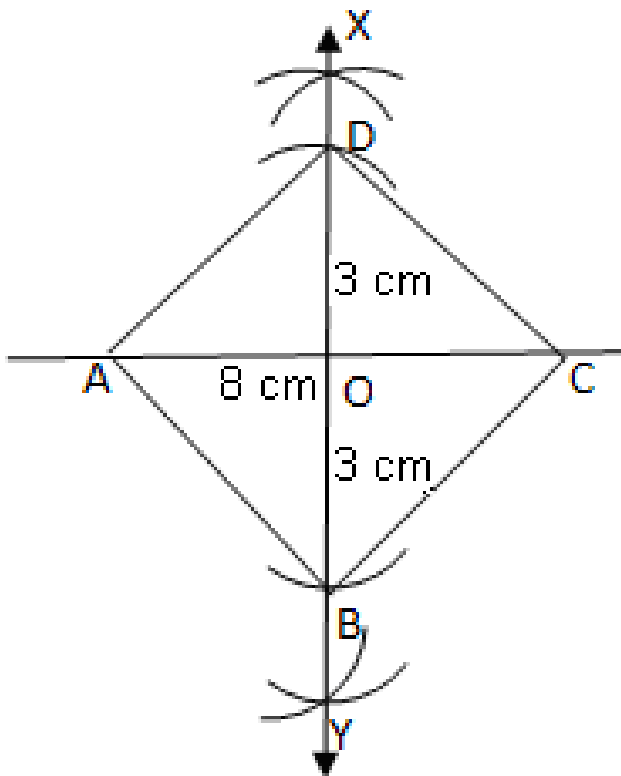
7. Rectangle PQRS with QR=3.6cm, diagonal PR=6cm. Measure the other side.

Side PS= QR=3.6cm

PQ= SR= 4.7cm

diagonals QS=PR=6 cm



8. Rhombus with length measures of the diagonals as 8cm and 6cm

Steps of construction:

- Draw $AC = 8\text{cm}$.
- Draw perpendicular bisector XY of AC meeting AC at O .
- From O cut off $OD = \frac{1}{2} \times 6\text{ cm} = 3\text{ cm}$ along OX and $OB = \frac{1}{2} \times 6\text{ cm} = 3\text{ cm}$ along OY .
- Join $AB, BC, CD,$ and DA .

9. Rhombus ABCD with AB=4cm and diagonal AC=6.5cm

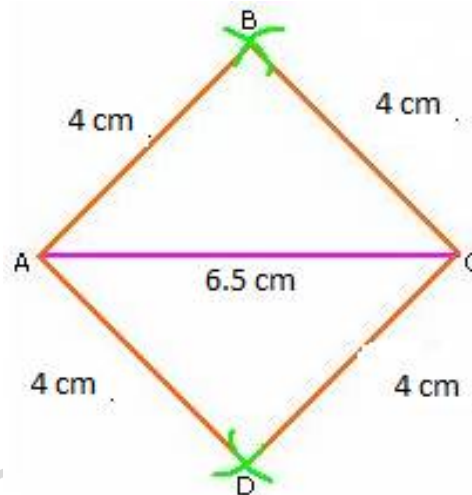
The given rhombus ABCD can be drawn as follows:

Step 1: Draw a line segment AC = 6.5 cm.

Step 2: With A as centre draw two arcs of 4cm on either side of AC.

Step 3: With C as centre draw another two arcs of 4cm such that it intersects the previous arcs at B and D.

Step 4: Join AB, BC, CD and DA.

**10. Rhombus with sides 7.2cm and one angle is 60 degrees.**

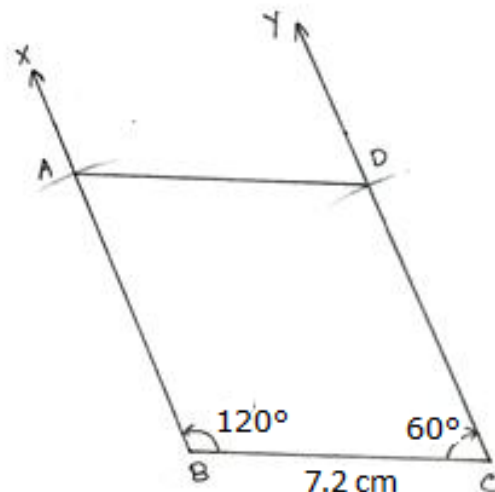
The given rhombus ABCD can be drawn as follows:

Step 1: Draw a line segment BC = 7.2 cm.

Step 2: Draw $\angle CBX = 120^\circ$ and $\angle BCY = 60^\circ$. (Adjacent Angle = $180^\circ - 60^\circ$)

Step 3: Set off BA = 7.2 cm along BX and CD = 7.2 cm along CY.

Step 4: Join AD



Chapter No:9**Exercise No: 9.1**

- a) $12 \times 1000 = 12000\text{m}$
- b) $52 \times 1000 = 52000\text{m}$
- c) $3.9 \times 100 = 390\text{cm}$
- d) $0.7 \times 100 = 70\text{cm}$
- e) $0.5 \times 10 = 5\text{mm}$
- f) $8.4 \times 10 = 84\text{mm}$

Exercise No: 9.2...

- a) $7250/1000 = 7.25\text{km}$
- b) $9758/1000 = 9.758\text{km}$
- c) $25700/100 = 257\text{m}$
- d) $9278/100 = 9.278\text{m}$
- e) $8500/100 = 85\text{cm}$
- f) $9058/100 = 9.058\text{cm}$

Exercise No: 9.3...

- a) $28000 \times 10 = 280000\text{mm}$
- b) $791000 \times 10 = 7910000\text{mm}$
- c) $1250000 \times 10 = 12500000\text{mm}$
- d) $7500 \times 10 = 75000\text{mm}$
- e) $92700/100 = 92.7\text{km}$
- f) $12.5/1000 = 0.0125\text{km}$
- g) $1850/1000 = 1.85\text{km}$
- h) $250/1000 = 0.25\text{km}$

Exercise No: 9.4...

- a) $3 \times 1000 = 3000\text{kg}$
- b) $2.5 \times 1000 = 2500\text{gm}$
- c) $0.8 \times 1000 = 800\text{mg}$
- d) $0.58 \times 1000 = 580\text{kg}$

Exercise No:9.5...

- a) $72.8/1000= 0.0728$
- b) $98000/1000= 98$
- c) $5980/1000= 5.98$
- d) $3890/1000= 0.0389$

Exercise No: 9.6...

- a) $9000000 \times 1000 = 9000,000,000$
- b) $250 \times 1000 = 250000$
- c) $125 \times 1000 = 125000$
- d) $250/1000 = 0.25$
- e) $675/1000 = 0.675$
- f) $813/1000 = 0.813$

Exercise No: 9.7...

- a) 520
- b) 4,4
- c) 260
- d) 5,17

- a) 590
- b) 3,50

- a) 850
- b) 10,11

- a) 680
- b) 13,24

Exercise No: 9.8...**Q.1 Solution:**

Fiza's age: 8 years, 4 months

Mother's age: 40 years, 6 months

Mother's age when Fiza was born = Mother's age now – Fiza's age

Mother's age = $40 \frac{6}{12} - 8 \frac{4}{12}$

Mother's age = $40 - 8 + (6 - 4)$

Mother's age = 32 yrs 2 months

Q.2 Solution:

Arij left home at: 8:30 am

Arij returned home at: 11:30 am

Length of time away from home = 11 hours 30 minutes – 8 hours 30 minutes

Length of time away from home = 11-8 hours and 30-30mins

Length of time away from home = 3 hours

Q.3 Solution

World Cup started on: March 4th, 2017

World Cup ended on: April 6th, 2017

Length in days world cup last: (From March 4th to March 31st) = 28 days + (April 1 to 6 or 6 days)

Length in days world cup last: 34 days

Q.4 Solution:

Annual exams started: March 20th

Annual exams ended: April 3rd

No. of days examination last: March 20th to March 31st = 12 days + April 1 to 3 or 3 days

No. of days examination last: 15 days

Q.5 Solution:

Plane left Karachi: 18:45

Plane reached Islamabad: 20:20

Total time: 20:20 – 18:45 or 20 hours – 18 hours + (20 minutes – 45 minutes = -25 minutes)

Hence, total time = 2 hours (-25 minutes)

Total time = 1 hour and 35 minutes

Q.6 Solution:

In one hour Shiza walks: 4 kilometers

For 18 kilometers: Shiza would need $18/4$ hours or $9/2$ hours

For 18 kilometers, Shiza would need 4.5 hour

Q.7 Solution:

Exercise time every day: half hour or 30 minutes

Exercise in five days: 30 minutes x 5

Exercise time in five days: 150 minutes

Q.8 Solution:

Izma left house at: 2:30pm

Izma returned at: 3:40pm

Total time she took: 3 hours 40 minutes – 2 hours 30 minutes

Total time: 1 hour, 10 mins



Distance and time Addition and subtraction**Q.1:**

- a) 51 00
- b) 88 40
- c) 67 62
- d) 127 20
- e) 34 10
- f) 116 44

Q.2:

- a) 16 68
- b) 20 15
- c) 11 16
- d) 3 11
- e) 14 13
- f) 21 18

Q.3:

- a) 10 10
- b) 31 60
- c) 14 12
- d) 19 33
- e) 62 47
- f) 8 15

Q.4:

- a) 1 10
- b) 16 07
- c) 2 01
- d) 4 20
- e) 14 25
- f) 2 03

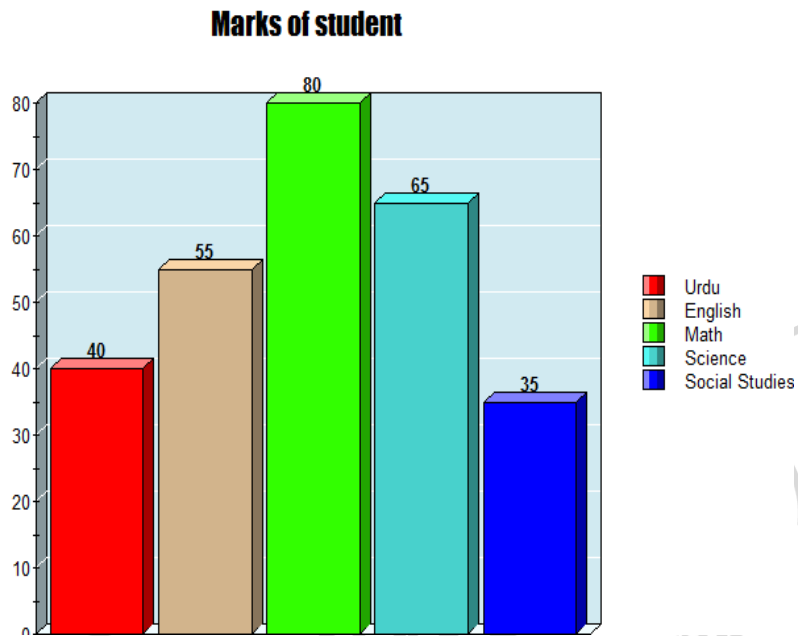
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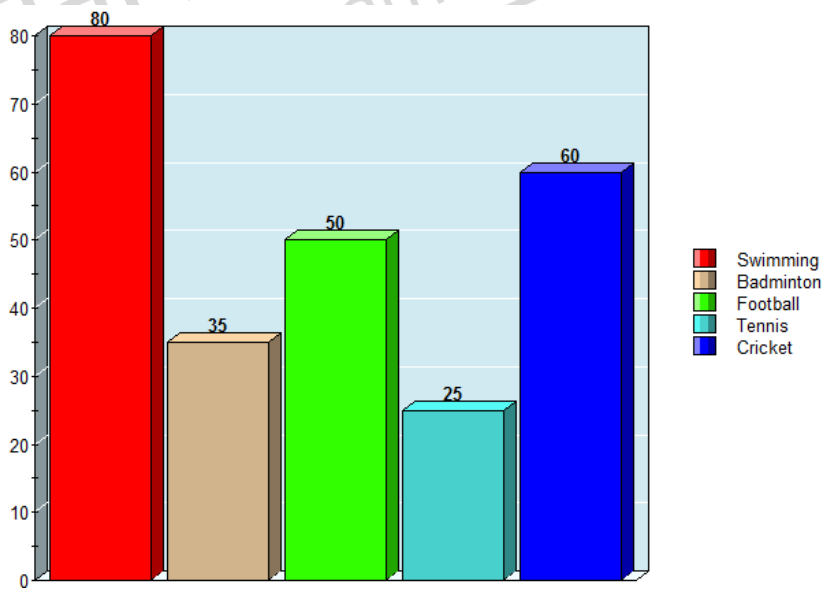
Chapter No: 10

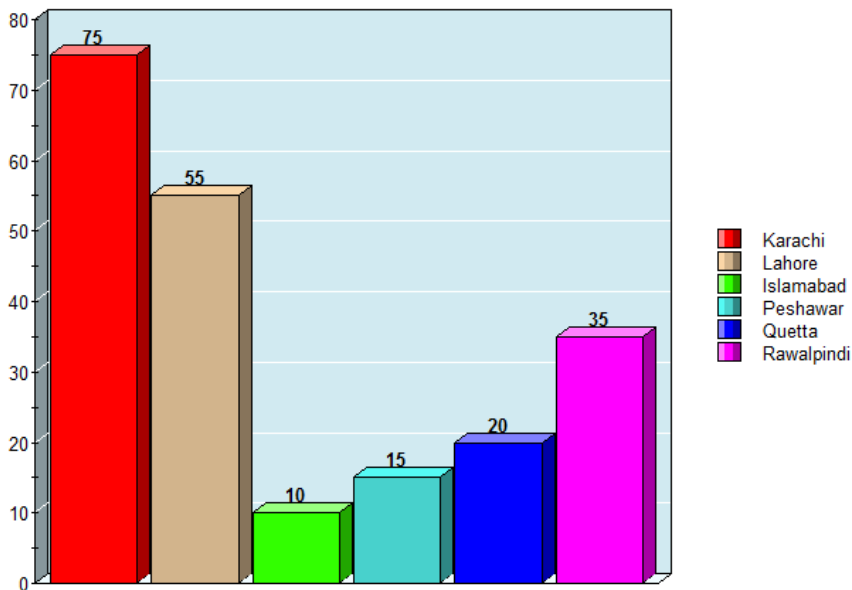
Exercise No: 10.1

Q. 1: Graph created from computer application. Students should do it on a graph paper.



2. Graph created from computer application. Students should do it on a graph paper.



Q.3 Graph created from computer application. Students should do it on a graph paper**Student Obtained Marks**

- (i) Information about marks
 (ii) 65 marks
 (iii) 50 marks
 (iv) Urdu
 (v) 250

Exercise No:10.2...**Q. 1**

- i. Percentage of birds = 30%
 ii. Percentage of animals not a rabbit = $100\% - 20\% = 80\%$
 iii. Fraction of animals either bird or deer
 Bird $\frac{30}{100}$ + deer $\frac{25}{100}$
 Bird + Deer = $\frac{55}{100}$ or $\frac{11}{20}$
 iv. ratio of bears to foxes.
 Bears: Fox = 10: 15
 Bears : Fox = 2:3
 v. winged animals to rabbits ratio
 Winged animals are birds so, birds : rabbits or 30:20 or 3:2
 vi. total animals
 total animals are assumed as 100

Q.2 Solution:

Data: Total people: 60

i. Fraction of people vacationed in another state

Total – (at home) / 60

$$(60-18) / 60 \text{ or } 48/60 = 4/5$$

ii. Fraction of people vacationed in Canada or Mexico or Europe

(Canada + Mexico + Europe) / 60

$$(5+10+12)/60 = 27/60 \text{ or } 9/20$$

iii. Fraction of people did not stay at home.

Same as i or i.e. $4/5$

iv. Fraction of people vacationed in their state or another state

$1/1$

Q. 3 Solution:

Total percentage is always 100%

Hence, Savings percentage = $100\% - 25\% - 45\%$

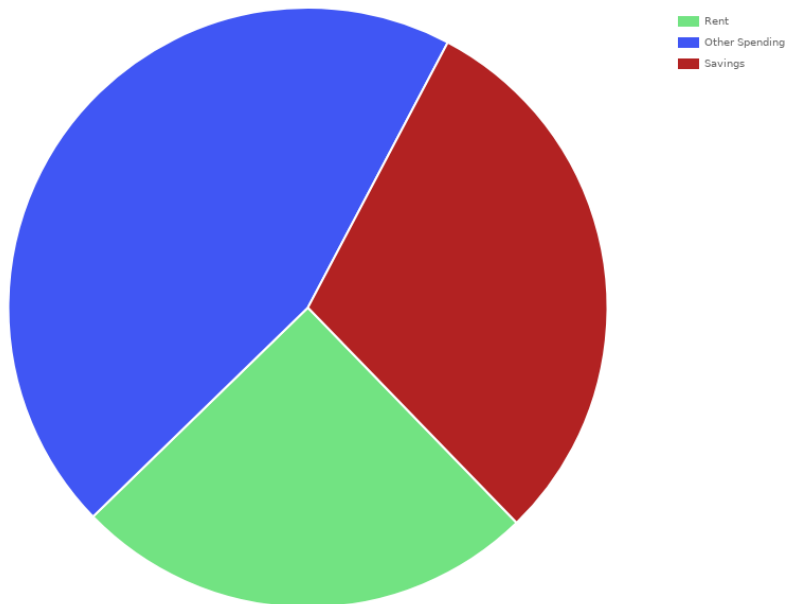
Savings percentage = 30%

Total angles is always 360

Hence, other spending angle for pie = $360 - 108 - 90$ degrees

Other spending angle = 162

b.



Graph created from computer application. Students should do it on a graph paper.

Exercise No:10.3

A. Students must do it on their own using the graph paper with the help of teacher.

Exercise No:10.4...**Q.1. Solution**

Masses of 5 chicken 2.5, 2.0, 3.5, 3.0 and 1.25
Average weight = $(2.5 + 2.0 + 3.5 + 3.0 + 1.25) / 5$
2.45 weight

Q.2. Solution

Scores of 5 matches: 98, 25, 105, 62 and 65 runs
Average = $(98+25+105+62+65)/5$
Average = 71 runs

Q.3. Solution

Temperature in degree Celsius: 35, 36, 34, 38, 40, 39 and 44
Average daily temperature = $(35+36+34+38+40+39+44)/7$
Average daily temperature = $266/7$
Average daily temperature = 38 C

Q.4. Solution

Earnings in 5 days: 1000, 600, 1500, 800 and 900
Total earnings: $1000+600+1500+800+900=4800$
Average earning = Total earning / 5 days
Average earning = $4800/5$
Average earning = Rs960

Q.5. Solution

Ifra=17 dolls, Zainab=11 dolls, Adina=7 dolls
Total dolls = $17+11+7=35$ dolls
Average dolls = $35/3$ or 11.66

Exercise No:10.5**Q.1. Solution**

Sum of observations = $20 \times 75 = 1500$

Correct sum

$$= 1500 - 68 + 86$$

$$= 1500 + 18$$

$$= 1518$$

Correct average

$$= 1518 / 20$$

$$= 75.975.9$$

Q.3 Solution

Monday: Rs2620, Tuesday: Rs4577, Wed: Rs3269, Thurs: Rs2615, Fri: Rs3269

Average = sum of all / 5 days

$$\text{Average} = (2620 + 4577 + 3269 + 2615 + 3269) / 5 = \text{Rs. } 3270$$

Q.4 Solution

$$(a) (13 - 22 + 31 + 38 - 9) / 5$$

$$= 10.2$$

$$(b) = 8.8$$

$$(c) = 1.8$$

Q.5 Solution

Morning: 49 miles, Afternoon: 37 miles, Remainder: 62 miles

$$\text{Bike ride} = 49 + 37 + 62 = 148 \text{ miles}$$

Q.6 Solution

Shiza ran: 6 miles

Shiza ran 3 times as much as Fiza

So if Fiza ran x miles, Shiza ran $3x$ miles

$$3x \text{ miles} = 6$$

$$\text{Hence } x = 6/3 = 2 \text{ miles}$$

Q.7 Solution

Avg. per day = 2.75 miles

No. of days = 8

$$\text{Total miles} = 2.75 \times 8 = 22 \text{ miles}$$



Q.8 Solution

Trip Distance: 238 miles

Distance covered in three days: $57.34 \times 3 = 171.96$

Distance left : $238 - 171.96 = 65.98$ miles

Q.9 Solution

Distance= speed x time or $s=vt$

Hence

Avg. speed: $51/4.25 = 12$ km/h

Q.10 Solution

Speed = Distance/Time

Speed = $1820/3.5$

Speed= 520 mph

Q.11 Solution

Speed = Distance/Time

Speed = $364/3.25$

Speed = 112 mph

Q.12 Solution

For 348 minutes to hours, we divide by 6

Time=5 hours 48 minutes or 5.8 hours

Distance: 40.6 miles

Speed: Distance/Time

Speed= $40.6/5.8$

Speed: 7 miles/hr

Q.13 Solution

Distance: 45 km

Speed: 20km/h

Time= Distance/speed

Time= $45/20$

Time 2.25 hours

Q.14 Solution

Distance i: 240 km

Time: 4 hours

Distance ii: 120 km

Time ii; 3 hours

Distance iii: 3km

Time iii: $\frac{1}{2}$ hour or 0.5 hour

Average speed: $(240/4 + 120/3 + 3/0.5)/3$

Average speed: 48.4 km/h



Exercise No:10.6**Q.2. Solution**

2769 units x Rs720 fee = 199360 total

9185 units x Rs220 fee = 2020700 total

Total units: 2769 + 9185 = 11954 units

Weighted average = $2020700/11954 = 169$

Q.3. Solution

Mean weight for 35 students: 45kg

Total weight = $35 \times 45 = 1575\text{kg}$

Adding teacher weight increases average by 500gms or 0.5 kg

Hence, $(1575+x)/\text{students} + \text{teacher or } 36 = 45.5\text{kg}$

Therefore, $45.5 = (1575 + x)/36$

$X = 45.5 \times 36 - 1575$

$X = 1638 - 1575$

$X = 63\text{kg}$

Q.4. Solution

Original price: Rs3575

Discount: 25%

Sale price: $3575 - (25\% \text{ of } 3575)$

Sale price: $3575 - 893.75$

Sale price : Rs.2,681.25

Q.5. Solution

Regular price: Rs27625

Discounted price: Rs20718.75

Discount amount: $27625 - 20718.75 = 6906.25$

Discount percentage = $6906.25/27625$

Discount percentage: 24.9 or 25%

Q.6. Solution

Discount percentage: 15%

Sale price: Rs8284.9 or 85% of the original price (x)

Hence, $85/100x = 8284.9$

$X = (8284.9 \times 100) / 85$

Rs. 9527.63

Q.7. Solution

Cost Price: Rs2600

Sale Price: Rs7500

Markup rate: Profit/cost price

Profit = 7500 – 2600

Profit: Rs4900

Mark up or profit rate = $4900/2600$ Mark up or profit rate = $4900/2600 = 188\%$ **Q.8. Solution**

Markup rate: 40%

Cost price: Rs2500

Selling Price: $2500 + (40\% \text{ of } 2500)$ Selling Price: $2500 + 100$

Selling Price = Rs3500

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