**Exercise 1.1**

**Q 1 : Express the following percentages as fractions in their lowest form.**

1. 95% =95/100 =19/20

v). 56% = 56/100 =28/50 =14/25

viii). 33 ½ %= 67/2×1/100 = 67/200

**Q 2 ): Express the following fractions as percentages, giving your answer correct to 1 decimal place, where necessary.**

1. ¾ = 3/4x100/100 =(3/4x100)1/100 = 75x1/100 =75%

v). 31/25 = 31/25x100/100 =(31/25x100)1/100 =(31x4)1/100 =124%

**Q 3): Express the following percentages as decimals, giving your answer correct to 3 places of decimal.**

1. 47% = 47x1/100 =47/100 =.47

viii). 145% =145x1/100 =145/100 = 1.45

**Q 4): Express the following decimals as percentages.**

i): 0.5 = 0.5x100/100 = (0.5x100)1/100 = ( 5/10x100)1/100 =(5x10)1/100 = 50%

vi). 0.22 =(0.22x100/100) =(22/100x100/100) = (22/100x100)1/100 = (22)1/100 =22%

**Ans Q5) COMPLATE TABLE**

Fraction Percentage Decimal

¾ 75% 0.75

4/5 4/5x100/100=4x20/100 =80% 0.80

40% = 40/100=4/10 40% 40% = 40/100 =0.4

= 2/5

0.62 = 62/100 =31/50 0.62x100/100 = 62/100x100% = 62% 0.62

44% = 44/100 = 11/25 44% 44%=44/100=0.44

**EXERCISE 1.2**

 Chapter number 1 RATIO

1. **IF 45% OF THE STUDENTS IN A SCHOOL ARE GIRLS. WHAT PERCENTAGE ARE BOYS?**

Total percentage =100%

Percentage of girls students =45%

Boys =Total – girls students

 100%-45% = (100-45)% =55%

**4) An aero plane carries 400 passengers,52% were Pakistani, 17% were Chinese,12%were from Iran and the rest were from British**

1. How many People of each nationality were on the Plane?
2. What percentage were British?
3. Solution: I ): Total Passengers in aeroplane =400

% of Pakistani Passengers =52%

Numbers of Pakistani Passengers =400x52/100 =208

Percentage of Chinese Passengers =17%

Numbers of Chinese Passengers =400x17/100 =68

Percentage of Irani Passengers =12%

Numbers of Irani Passengers =400x12/100 =48

 II) British Passengers =400-(208+68+48)

 = 400-324 =76

Now percentage of British =(100x76/100)% =19%

**5) Amna scored 46 out of 50 in Math’s test, 64 out of75 in a Chemistry test, and 72 out of 80 in a Physics test, In which subject did she Perform best?**

Solution: Total Marks of maths =50

 Obtained Marks = 46

Maths Percentage = ( Total marks obtained /Total marks )x100%

 =( 46x100/50)%=92%

Total Marks in Chemistry=75

Obtained Marks =64

Percentage =(64x100/75)% = 85.33%

Total Marks in Physics = 80

Obtained Marks =72

Percentage = (72x100/80)% =90%

So she performed best in Maths

**7); if 84% of a book consists of 420 pages. Find total number of pages in the book.**

Solution: 84% of book consists = 420 pages

Total numbers of pages = ?

Total Pages = 420x100/84 =42000/84 = 500 Pages

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 **Home Work Q.N 2 ,3 ,6,8 , 9**

1. **EXERCISE 1.3**

 chapter number 1 RATIO

**Find the ratio of first quantity to the second in its lowest term**

1. Rs24, Rs 6

24:6 = 4:1

1. 20kg,5kg

20:5 =4;1

III) Rs 150,Rs 275

150:275 =30:55 =6:11

2): Express each of the following ratio in its simplest form

i) : 2/3:3/5

2/3:3/5 =2/3÷3/5 =2/3x5/3 =10/9 or 10:9

VI):4/10:20

 4/10:20 = 4/10x1/20 =1/50 = 1:5

1. **In a city 126 medical students traveled by:**

 Rikshaw Taxi Bus car

 14 9 75 28

 **Find ratio of the students who used**

1. Rikshaw to taxi
2. Taxi to bus
3. Taxi to car

Solution: i) Rikshaw to Taxi 14:9

 II) Taxi to bus = 9:75 = 3:25

iii)Taxi to Car 9:28

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**Q 4: In a school libray , there are 75 books on Mathematics , 115 on English, 85 on Chemistry and 60 on P hysics. Find ratio of the following**

1. Mathematics books to English books.
2. English books to Chemistry books.
3. English books to Physics books.
4. Physics books to Chemistry books.
5. Physics books to Mathematics books
6. Chemistry books to Mathematics books.

Solution: i) 75:115 = 15:23

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ii) 115:85 = 23:17

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iii): 115:60 = 23:12

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1. 60:85 = 12:17
2. 60:75 = 12:15 =4:5

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1. 85:75 = 17:15

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Note that the remaining parts of Q1 and2 are home work

1. **EXERCISE 1.4**

 Chapter number 1 RATIO

**Q1): Find the ratio of 6 rupees each to 72 rupees per dozen.**

**Solution: we know that**

 1 dozen = 12

Price of 12 dozen =72

Price of 1 = 72/12 =6

Now ratio

6:6 => 1:1

**Q4): A square ,A, has side 2cm and a square B has side 6cm.**

Find the ratio of:

i)The length of the side of the square A to the length of the side of the square B

II) The perimeter of the square A to the perimeter of the square B.

III) The area of the square A to the Area of the square B.

Solution :(i) Length of side A: Length of side B

 2:6 OR 2/6=1/3 =>1:3

 (II) Perimeter of square A =4a (where a is a side)

 4(2)=8

 Perimeter of the square B = 4(6) = 24

Now 8:24 or 8/24= 1/3 0r 1:3

 (iii) Area of square A = $a^{2}$=$2^{2}$=4

 Area of square B = $6^{2}$=36

 Now 4: 36 0r 4/36 1/9 = 1:9

**Q (7): Two angles in a Triangle are** $54^{0 }$**and** $72^{0}$**. Find the ratio of the third angle to the sum of the first two.**

Solution: Let A, B and C represent three angles of a triangle. Now

<A= $54^{0}$, <B = $72^{0}$, <C =?

We know that

<A+<B+<C=$180^{0}$

54+72+<A=180

126+<A=$180^{0}$

<A=$180^{0}$\_$126^{0}$=$54^{0}$

Now <A+<B=$126^{0}$

So $54^{0}$:$126^{0}$ or 54/126=27/63= 9/21=3/7or $3^{0}$:$7^{0}$

**Q (10): A family has 12 pets of which 6 are cats, 2 are dogs and the rest are birds. Find the ratio of the number of**

1. Birds to dogs
2. Birds to pets

Solution: Total pets=12

Cats =6

Dogs =2

Birds =12-(6+2) =12-8=4

Now

1. Birds: dogs =4:2 or 4/2 =2/1 or 2:1
2. Birds: pets =4:12or 4/12 =1/3 =1:3

NOTE the remaining questions of exercise 1.4 are your home work

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Exercise 1.5

**PROPORTION: The equality of two ratios is known as proportion.The symbol for proportion is “::”or “=”**

**EXTREMS and MEANS**

IF a:b=c:d, then the proportion is a:b::c:d. We read it as ratio a is to b is as ratio c is to d

The first and fourth terms i.e “a” and “d” are called the extremes, while the second and third terms “b” and “c”are called the means of the proportion.

Note that the product of means is equal to the product of extremes,

**Q 1): Find the value of x in the proportion 20:50::8:x ?**

Solution: 20:50::8:x

We know that

Product of mean =product of extremes.

50x8 =20x => 50x8/20 =x => 20 =x

**Q 4): A certain journey by train takes 5 hours at the speed of 45km/h. What will be the speed of the train to complete the same journey in 3 hours?**

Solution: let x represent speed of train

Now speed time

 45 5

 X 3

* X /45 = 5/3
* 3x = 5x45
* X = 5x45/3
* X= 75

**Q 6): A manager plans to produce 100 bicycles with the help of 25 persons working 4 hours daily. How many bicycles can be made by 40 persons if they work 3 hours daily ?**

Solution: let x represent number of bicycles.

 According to given condition

Bicycles men time(hr)

100 25 5

X 40 3

It’s a direct proportion . Because if the number of bicycles increase then the no. of men also increase

* x/100 =40/25×3/4
* X = 100× 40/25 ×3/4
* X = 120 bicycles

**Q 10): IF the stay of 14 men for 8 days in a hotel costs Rs. 22,400.Find the cost for the stay of 7 men for 13 days**

Solution: let x represent the cost of stay of men in a hotel

According to given condition

Cost Men days

22400 14 8

X 7 3

 We know that if no. of man increase then cost increase (direct proportion)

If days increase then cost increase (direct proportion)

* x/22400 = 7/14×13/8
* X = 7/14 ×13/8 ×22400
* X = 13x1400
* X = 18200

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**Q 11): 14 cows consume 63kg of hay in 18 days. How many cows will eat 770 kg of hay in 28 days at same rate?**

Solution: let X represent the number of cows

According to given condition

Cow quantity of hay days

14 63 18

X 770 28

Note that if cows increase then no. of days decrease(inverse proportion )

And if cow increase then more quantity of hay is consumed (direct proportion)

X/14 = 770/63×18/28

X = 770/63 ×18/28×14

X 110cows

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 Note the remaining question of exercise 1.5 will be a home work .

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