

Q# 1

In a class, the number of boys is more than the numbers of girls by 12% of the total strength of the class. Find the ratio of boys & girls.

Sol

let suppose boys to be = x

Girls to be = y

Total strength of class = boys + girls = $x + y$

$$x = y + 12\% (x + y)$$

$$x = y + \frac{12}{100} (x + y)$$

$$x = y + \frac{3}{25} (x + y)$$

$$x = \frac{y + 3x + 3y}{25}$$

$$x = \frac{25y + 3x + 3y}{25}$$

$$25x = 28y + 3x$$

$$25x - 3x = 28y$$

$$22x = 28y$$

$$\frac{x}{y} = \frac{28}{22}$$

$$\frac{x}{y} = \frac{14}{11}$$

$$\Rightarrow x : y = 14 : 11$$

Q#2

Find the ratio of 3.5kg to 280grams.

$$\begin{aligned} 3.5 \text{ kg} &= 3.5 \times 1000 = 3500 \text{ g} \\ &= 3500 \text{ g} : 280 \text{ g} \\ &= \frac{3500}{280} \\ &= \frac{25}{2} \end{aligned}$$

$$= \frac{25}{2} \Rightarrow \boxed{25 : 2}$$

Q#3

Two numbers are in the ratio 3:4.

If 6 is added to each term of the ratio, there is an increase of 20 percent in the given ratio. Find the first and second number.

Sol:

Let's the 1st no. to be = $3x$

2nd no. to be = $4x$

According to statement

$$3x + 6 : 4x + 6 = \frac{3 + (20\% \times \frac{3}{4})}{4}$$

$$\frac{3x + 6}{4x + 6} = \frac{3}{4} + \frac{20(3)}{100(4)}$$

$$\frac{3x+6}{4x+6} = \frac{3}{4} + \frac{3}{20}$$

$$\frac{3x+6}{4x+6} = \frac{5 \times 3 + 3 \times 1}{20}$$

$$\frac{3x+6}{4x+6} = \frac{15+3}{20}$$

$$\frac{3x+6}{4x+6} = \frac{18}{20}$$

$$20(3x+6) = 18(4x+6)$$

$$60x + 120 = 72x + 108$$

$$120 - 108 = 72x - 60x$$

$$12 = 12x$$

$$x = 1$$

$$\text{the first no.} = 3(x)$$

$$\therefore x = 1$$

$$\text{So, } 3x = 3(1) = 3$$

$$\text{2nd no.} = 4x$$

$$= 4(1) = 4$$

$$3x \cdot 4x$$

$$3(1) \cdot 4(1)$$

$$\boxed{3 \cdot 4}$$

QUESTION #1

14 cows eat 63 kg grass in 18 days. How many cows will eat 770 kg grass in 28 days?

Days	(kg) Grass	cows
18	63	14
28	770	$x = ?$

$$\frac{x}{14} = \frac{\begin{array}{r} 55 \\ 110 \\ \hline 770 \\ 63 \\ \hline 7 \\ 1 \end{array}}{\begin{array}{r} 9 \\ 18 \\ \hline 28 \\ 14 \\ \hline 7 \end{array}} \times$$

$$\frac{x}{14} = \frac{55}{7}$$

$$x = \frac{55 \times 14^2}{7}$$

$$x = 110 \text{ days}$$

Q#2

A food factory manufactures 560 fans in 7 days with 20 machines. How many fans would be manufactures in 12 days with 18 machines?

Days	Machines	Fans
↑ 7	↑ 20	560 ↑
12	18	x

$$\frac{x}{560} = \frac{18}{20} \times \frac{12}{7}$$

$$\frac{x}{560} = \frac{54}{35}$$

$$x = \frac{54 \times 560}{35}$$

$$x = \frac{6048}{7}$$

$$x = 864 \text{ Fans}$$

Q#3

The cost of 16 packets of salt, each weighting 900grams is 84 dollars. What will be the cost of 27 packets of salt each weighting 1kg?

$$\therefore 1 \text{ kg} = 1000 \text{ grams}$$

Packets	weight of salt	cost
16 ↑	900g ↑	84 ↑
27 ↑	1000g ↑	x ↑

$$\frac{x}{84} = \frac{27}{16} \times \frac{1000}{9000}$$

$$\frac{x}{84} = \frac{15}{8}$$

$$x = \frac{15}{8} \times 84$$

$$x = \frac{315}{2}$$

$$x = 157.5 \$$$

$$\begin{array}{r} 21 \\ \times 15 \\ \hline 105 \\ 21 \times \\ \hline 315 \end{array}$$

$$\begin{array}{r} 157.5 \\ 2 \overline{) 315} \\ \underline{2} \\ 11 \\ \underline{10} \\ 15 \\ \underline{14} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

Q#4

If 270 kg of corn would feed 42 horses for 21 days, for how many days would 360 kg of it feed 21 horses?

Corn(kg)	Horses	Days
↑ 270	42	21 ↑
360	↓ 21	x

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$$x = \frac{240}{3} \times 7$$

$$x = 560 \text{ days}$$

$$\frac{x}{21} = \frac{42}{21} \times \frac{360}{9}$$

$$\frac{x}{21} = \frac{24}{9}$$

$$x = \frac{24}{9} \times 21$$

$$x = 56 \text{ days}$$

Q#1

Hamza spends 20% of his total income on house rent, 70% on domestic expenditure. If his saving is Rs 18000. (a) What will be his total income?

- (b) Change into fraction 70%.
- (c) Find 15% of 600.

(a) Total income of Hamza

Let suppose Total income to be = x

Hamza spends 20% of his total income
on house rent = $20\% x$

$$= \frac{20}{100} (x)$$

$$= \frac{x}{5}$$

Hamza spends 70% on domestic
expenditure = $\frac{70}{100} (x)$

$$\text{Saving} = \frac{7x}{10} = \text{Rs. } 18000$$

$$\text{Total income} = \text{Expenditure} + \text{Saving}$$

$$x = \frac{x}{5} + \frac{7x}{10} + 18000$$

$$x = \frac{2x + 7x + 18000(10)}{10}$$

$$x = \frac{9x + 180000}{10}$$

$$10x = 9x + 180000$$

$$10x - 9x = 180000$$

$$x = 180000 \text{ Rs.}$$

(b) Change into fraction 70%

$$70\%$$

$$= \frac{70}{100}$$

$$= \frac{7}{10}$$

(c) Find 15% of 600

$$= \frac{15}{100} (600)$$

$$= 90$$

Q#2

Which fraction is larger in the following?

(a) $\frac{7}{9}$, $\frac{1}{4}$, $\frac{13}{36}$

Multiply above fractions with suitable numbers

like 4, 9, 1

$$\frac{7 \times 4}{9 \times 4}, \frac{1 \times 9}{4 \times 9}, \frac{13 \times 1}{36 \times 1}$$

$$\frac{28}{36}, \frac{9}{36}, \frac{13}{36}$$

$\frac{7}{9}$ is the largest fraction

(b) Solve

$$(i) (7)^2 + x - (2 \times 4) \div 2$$

$$= 49 + x - (8) \div 2$$

$$= 49 + x - 4$$

$$= 45 + x$$

$$= x + 45$$

$$(ii) 9 + 3 + 3 \times 2$$

$$= 9 + 3 + 3 \times 2$$

$$= 9 + 3 + 6$$

$$= 18$$

$$(iii) \quad (x^2)^3 = ?$$

$$(x^2)^3 = x^6$$

$$(iv) \quad x^a \cdot x^b = ?$$

$$x^a \cdot x^b = x^{a+b}$$

$$(v) \quad \frac{x^{a+b}}{x^{c-d}} = ?$$

$$= x^{a+b} \cdot x^{-c+d} = x^{a+b-c+d}$$

Convert into meter : 10 cm

$$\because 1 \text{ meter} = 100 \text{ cm}$$

$$\because 1 \text{ cm} = 0.01 \text{ m}$$

$$= \frac{10 \text{ cm}}{100}$$

$$10 \text{ cm} = 0.1 \text{ m}$$