

15 should be added.

(Homework)

- 1) Ahmad's monthly income is 90,000. While his expenditure is 65,000/.
- 2) Find ratio b/w income expenditure
- 3) Ratio b/w expenditure and saving
- 4) Ratio b/w saving & income.

Solution:

Given:

Ahmad's monthly income = RS 90,000

Ahmad's expenditure = RS 65,000

Required:

a) income: expenditure = ?

b) expenditure : Saving = ?

c) Saving: income = ?

Solution:

a):

$$\begin{array}{r} 13 \\ 5 \overline{) 65} \\ \underline{5} \\ 15 \end{array}$$

income: expenditure

$$90,000 : 65,000 \quad \overset{18}{90} : \overset{13}{65}$$

$$\begin{array}{r} 13 \\ 5 \overline{) 65} \\ \underline{5} \\ 15 \end{array}$$

$$(\overset{18}{90} : \overset{13}{65})^x \quad 18:13$$

$$(\overset{18}{18} : \overset{13}{13})^x$$

$$\begin{array}{r} 18 \\ 5 \overline{) 90} \\ \underline{5} \\ 40 \end{array}$$

$$\boxed{18:13} \text{ Ans}$$

b) expenditure: Saving \rightarrow (A)

Saving = total income - expenditure

$$\begin{array}{r} 900 \\ 65 \\ \underline{25} \end{array}$$

$$= \text{RS } 90,000 - 65,000$$

$$= \text{RS } 25,000 \text{ putting in (A)}$$

$$\begin{array}{r} 13 \\ 5 \overline{) 65} \\ \underline{5} \\ 15 \end{array}$$

$$65,000 : 25,000$$

$$\overset{13}{65} : \overset{5}{25}$$

$$\boxed{13:5} \text{ Ans}$$

c) Saving: income

$$\begin{array}{r} 1 \\ 5 \overline{) 90} \\ \underline{5} \\ 40 \end{array}$$

$$25,000 : 90,000$$

$$\overset{5}{25} : \overset{18}{90}$$

$$\boxed{5:18} \text{ Ans}$$

Q: Two numbers are respectively 20% & 50% more than a 3rd number. Find ratio of 1st and 2nd number:

Solution:

Let 3rd number be: z

1st number be x and 2nd number y

According to the given condition

$$x = z + 20\% \quad \text{and} \quad y = z + 50\%$$

Suppose, $z = 100$

then: $x = 100 + 20\%$

$$x = \frac{100 + 20}{100}$$

$$\boxed{x = 20}$$

& $y = 100 + 50\% \Rightarrow y = \frac{100 + 50}{100}$

$$\boxed{y = 50}$$

Ratio b/w x & y is:

$$x : y$$

$$20 : 50$$

$$\boxed{2 : 5} \quad \text{Answer}$$

Days & food (members constant)

⇒ Aslam type 200 words in 30 mins.

How many words will he type in 15 mins?

Words : Time

↓	200	:	30 min	↓
↑	x	:	15 min	↓

There is direct relationship

So,

$$200 \times 15 = x \times 30$$

$$30,000 = 30x$$

dividing "30" on both sides:

$$\frac{30x}{30} = \frac{30,000}{30}$$

$$x = 1000 \text{ Ans}$$

Compound Proportion:

1) 20 pens cost 200 rs, what will be cost of 35 pens?

Solution: 20 pen's cost = 200 RS

$$\text{Cost of 1 pen} = \frac{200}{20} = 10 \text{ RS}$$

So,

$$\text{Cost of 35 pens} = 10 \times 35$$

$$= 350 \text{ RS} \text{ Ans}$$

2) The value of x in the given proportion

$$1.6 : 1.2 :: 2.4 : x \text{ is ?}$$

Solution: $1.6 : 1.2 :: 2.4 : x$

As, Product of means = Product of extremes

$$1.6 \times x = 1.2 \times 2.4$$

$$\frac{1.6x}{10} = \frac{1.2 \times 2.4}{10}$$

$$1.6x = 2.88$$

$$\frac{1.6x}{10} = \frac{288}{100}$$

$$16x = \frac{144}{5 \times 100} \times 100$$

$$x = 144$$

$$5 \times 16$$

$$x = 144 \frac{72}{40 \ 80}$$

$$\Rightarrow x = 72 \frac{36}{40 \ 20}$$

$$40 \ 80$$

$$40 \ 20$$

$$x = 36 \frac{18}{5 \ 20}$$

$$5 \ 20$$

$$x = 18$$

$$\Rightarrow$$

$$x = 3.6$$

Ans

8 (Shares)

Distribute / تقسيم

3 persons started a business & spend 25,000, 15,000 & 40,000 respectively. Find share of each out a profit of 14,400 in a year.

Solution: Let 3 person be A, B and C.

A : B : C

$$25000 \times 1 : 15000 \times 1 : 40,000 \times 1$$

$$25000 : 15000 : 40,000$$

$$5 : 3 : 8$$

Share ratio (total), 16

A's share: Profit \times A's ratio

$$\frac{900 \text{ } 14400}{3600 \text{ } 16} \text{ SR}$$

$$= \frac{14,400 \times 5}{16} = \boxed{4500 \text{ RS}} \text{ Ans}$$

B's share.

$$= \frac{900 \text{ } 14400}{3600 \text{ } 16} \times 3$$

$$\frac{1}{16}$$

$$= \boxed{2700 \text{ RS}} \text{ Ans}$$

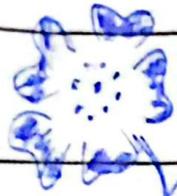
C's share:

$$\frac{900 \text{ } 14400}{3600 \text{ } 16} \times 8$$

$$\frac{1}{16}$$

$$= \boxed{7200 \text{ RS}} \text{ Ans}$$

Days & food (members cons...)



H.w

Q \Rightarrow Aslam type 200 words in 30 mins.

How many words will he type in 15 mins?

Words : Time

$$\begin{array}{ccc} \downarrow & \uparrow & \downarrow \\ 200 & : & 30 \text{ min} \\ x & : & 15 \text{ min} \end{array}$$

There is direct relationship

So,

$$200 \times 15 = x \times 30$$

$$30,000 = 30x$$

dividing "30" on both sides:

$$\frac{30x}{30} = \frac{30,000}{30}$$

$$x = 1000 \text{ Ans}$$

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$$= 350 \text{ RS} \text{ Ans}$$

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Solution: $1.6 : 1.2 :: 2.4 : x$

As, Product of means = Product of extreme

$$1.6 \times x = 1.2 \times 2.4$$

$$\frac{1.6x}{10} = \frac{1.2 \times 2.4}{10}$$

$$1.6x = 2.88$$

$$\frac{1.6x}{10} = \frac{288}{100}$$

$$16x = \frac{144}{5 \times 100} \times 100$$

$$x = \frac{144}{5 \times 16}$$

$$x = \frac{144}{80} \Rightarrow x = \frac{72}{40} \times \frac{36}{20}$$

$$x = \frac{36}{5} \times \frac{18}{20}$$

$$x = \frac{18}{5} \Rightarrow x = 3.6 \text{ Ans}$$

8(Shares) Distribute/ divided
data: Ratios \Rightarrow whole

② 2 buses tickets from RWP to ASB & 3 tickets from RWP to Murree cost 770 RS but 3 tickets from RWP to ASB & ① tickets from RWP to Murree cost 730 RS. What are fares for cities ASB & Murree from RWP? (CSS)

Let Bus ticket for RWP = x ASB = x
RWP - Murree = y (and RWP)

$$2x + 3y = 770 \rightarrow \textcircled{1}$$

$$3x + 2y = 730 \rightarrow \textcircled{2}$$

Multiplying eq ① by 3:

$$6x + 9y = 770 \times 3 \Rightarrow 6x + 9y = 2310 \rightarrow \textcircled{4}$$

Multiplying eq ② with ②:

$$6x + 4y = 730 \times 2 \Rightarrow 6x + 4y = 1460 \rightarrow \textcircled{5}$$

Subtracting eq ⑤ from ④:

$$\begin{array}{r} 6x + 9y = 2310 \\ - 6x + 4y = -1460 \\ \hline 5y = 840 \end{array}$$

$$5y = 840 / 5$$

$$y = 168 \text{ RS}$$

$$2x + 3y = 770$$

$$2x + 3(168) = 770$$

$$2x = 770 - 492 \Rightarrow \frac{278}{2} = 139 \text{ RS}$$

$$\begin{array}{r} 770 \\ \times 3 \\ \hline 2310 \end{array}$$

$$\begin{array}{r} 730 \\ \times 2 \\ \hline 1460 \end{array}$$

$$\begin{array}{r} 2310 \\ - 1460 \\ \hline 850 \end{array}$$

$$\begin{array}{r} 5 \overline{) 840} \\ 168 \\ \hline \end{array}$$

$$\begin{array}{r} 278 \\ \div 2 \\ \hline 139 \end{array}$$

⇒ Fare from RWP to Asl is RS 139 and
Fare from Muree to RWP is RS 168

② Tayaba visited a book store, she purchased 3 books & 8 pens for 4350 RS, while cost of 2 books & 5 pens is 2800 RS. find cost of one book & one pen.

Solution:

Let books = x Pens = y

According to given condition:

$$3x + 8y = \text{RS } 4350 \rightarrow \text{①}$$

$$2x + 5y = \text{RS } 2800 \rightarrow \text{②}$$

Multiplying eq ① by ② & eq ② by ③:

$$6x + 16y = 8700 \quad (\text{Subtracting})$$

$$- 6x + 15y = 8400$$

$$y = 300$$

$x = ?$

$$3x + 8(300) = \text{RS } 4350$$

$$3x + 2400 = 4350$$

$$3x = 4350 - 2400$$

$$3x = 1950$$

$$x = 650$$

∴ Cost of 1 book = 650 and Cost of 1 pen = 300

⇒ Rahid left a property worth RS 1,750,000. His family had to pay off a debt of RS 1,50,000. The rest of money was distributed b/w a son & a daughter. How much did each child receive if the share of a son was double that of a daughter? (CSS)

Solution: Rahid left property: RS 1,750,000

Debt to be payed = 1,50,000

$$\begin{aligned} \text{Money left} &= 1,750,000 - 1,50,000 \\ &= 25,000 \text{ RS} \end{aligned}$$

Solution:

Son : daughter

2 : 1

Total share ratio: 3

⇒ Son's share:

$$= \text{Total} \times \text{ratio of son.}$$

SR

$$= \frac{25,000 \times 2}{1+2}$$

$$= \frac{50,000}{3} = 16,666.66 \text{ Ans}$$

25000
25
14
8333
3 25000
240
10
1
10
25000
800
16666
3 16666
3
20
18
20

66
10000
10000
10000
20
20

⇒ Daughter:

$$= \frac{25,000 \times 1}{3} = \boxed{6333.33} \text{ Ans}$$

⇒ In a farm, a farmer counted 78 legs & 35 heads consisting of cows & hens. How many hens does the farmer have.

↓ Cow's legs = 4 1 hen's leg = 2
↓ head: 1

Cow = x , Hens = y

for head: $x + y = 35 \rightarrow \textcircled{1}$

for legs: $4x + 2y = 78 \rightarrow \textcircled{2}$

Subtracting $\textcircled{1}$ from $\textcircled{2}$:

$$4x + 2y = 78$$

$$-x + y = -35$$

$$3x - y = 43 \rightarrow \textcircled{3}$$

Subtracting $\textcircled{1}$ from $\textcircled{3}$

$$3x - y = 43$$

$$-x + y = 35$$

$$2x = 8$$

$$\frac{2x}{2} = \frac{8}{2}$$

$$\boxed{x = 4}$$

$$x + y = 35$$

33 }
Ans

دن:

تاریخ:

$$4 + y = 35$$

$$y = 35 - 4$$

$$y = 31$$

∴ Farmer have 4 cows & 31 hens.

(1 1 1 1 1)