

Assignment 2

Ratio, Proportion

1) If a carton containing a dozen mirrors is dropped, which of the following cannot be the ratio of broken mirrors to unbroken mirrors?

- a) 2:1 b) 3:1 c) 3:2 d) 1:1 e) 7:5

$$\begin{aligned} T &= 12 \\ 2x + x &= 3x = \frac{12}{3} = 4 \rightarrow \text{whole No } \checkmark \\ 3x + x &= 4x = \frac{12}{4} = 3 \rightarrow \checkmark \\ \frac{12}{5} &= 2.4 \quad \times \\ &\underline{\underline{3:2}} \end{aligned}$$

2) The total cost of producing a certain number of units of an article is partly fixed and partly varies directly with the number of units of that article produced. The average cost of producing 15000 units of that article is Rs.2 while that of producing 25000 units of that article is Rs.1.5. Find the variable cost of each unit of that article produced

- a) Rs.1.25 b) Rs.0.75 c) Rs.1.50 d) Rs.2.50 e) None of these

$$\begin{aligned} a + 15000b &\rightarrow 2 = 30000 \\ a + 25000b &\rightarrow 1.5 = 37500 \\ \hline -10000b &= -7500 \\ b &= \frac{7500}{10000} \\ &= \underline{\underline{0.75}} \end{aligned}$$

3) I) $a:b=3:7$, Find the value of $5a+b:4a+5b$

a) 15:44 b) 22:35 c) 15:49 d) 22:47 e) Can't be determine

$$\begin{aligned}
 a &= 3x \\
 b &= 7x \\
 \frac{5a+b}{4a+5b} &= \frac{5 \times 3x + 7x}{4 \times 3x + 5 \times 7x} \\
 &= \frac{15x + 7x}{12x + 35x} \\
 &= \frac{22x}{47x} \\
 &= \frac{22}{47}
 \end{aligned}$$

II) $a:b=3:2$, Find the value of $5a^2+b:5a-b$

a) 13:47 b) 47:13 c) 22:47 d) 15:49 e) Can't be determine

$$\begin{aligned}
 a &= 3x \\
 b &= 2x \\
 \frac{5a^2+b}{5a-b} &= \frac{(5 \times (3x)^2) + 2x}{(5 \times 3x) - 2x} \\
 &= \frac{(5 \times 9x^2) + 2x}{15x - 2x} \\
 &= \frac{45x^2 + 2x}{13x}
 \end{aligned}$$

III) $a:b=3:2$, Find the value of $2a-3b$: $4a-3b$

- a) 13:47 b) 0 c) 22:47 d) 15:49

$$\begin{aligned} a &= 3x \\ b &= 2x \\ \frac{2a-3b}{4a-3b} &= \frac{(2 \times 3x) - (3 \times 2x)}{(4 \times 3x) - 2x} \\ &= \frac{6x - 6x}{12x - 2x} \\ &= \underline{\underline{0}} \end{aligned}$$

4) An amount of Rs.1560 was divided among A, B and C in the

ratio $\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$. Find the share of C in this amount.

- a) Rs.300 b) Rs.320 c) Rs.280 d) Rs.360 e) None of these

$$\text{LCM} = 2, 3, 4 = 12$$

$$\left. \begin{aligned} \frac{1}{2} \times 12 &= 6 \\ \frac{1}{3} \times 12 &= 4 \\ \frac{1}{4} \times 12 &= 3 \end{aligned} \right\} 13$$

$$\begin{aligned} &\frac{3}{13} \times 1560 \\ &\underline{3480} \\ &\quad + 0 \\ &\quad \underline{0} \\ &= \underline{\underline{360}} \end{aligned}$$

5) Two men Ashok and Baban have the ratio of their monthly incomes as 6:5. the ratio of their monthly expenditure is 3: 2. find the ratio of their monthly savings.

- a) 1:1 b) 3:5 c) 3:10 d) 3:8 e) Can't be determine

$$I \begin{cases} A = 6x \\ B = 5x \end{cases}$$

$$E \begin{cases} A = 3y \\ B = 2y \end{cases}$$

$$\begin{aligned} \text{Saving} &= \text{Income} - \text{Expenditure} \\ &= \frac{6x - 3y}{5x - 2y} \\ &= 3:2 \end{aligned}$$

Coding Decoding

6) In a certain code ALPHABET is written as YJNFYZCR, then

how will CHILDREN be written in the same language?

- a) EJKNFTGP b) AFGJBPC L c) DIJMESFO d) AFJGBPCL

ALPHABET
 Z K O G Z A D S
 Y J N F Y Z C R

CHILDREN
 A F G C

AFGJBPC L

7) In a certain code BUSINESS is written as FSWGRCWQ, then

how will BANGALORE be written in the same language?

a) FYREEJSPI b) ZELKXPMVC c) YFERJEPSI d) DCPICNQTG

2 21 19
B U S I N E S S
4 2 4
F S W G R C W Q
6 19 23
B A N G A L O R E
4 2 4 2 4 2 4
P I
FYREEJSPI

8) In a certain code GUNPOWDER is written as

DEGNOPRUW, then how will HOSTPITAL be written in the same language?

a) AIOHLPST b) HLPSTAIO c) TSPOLIHA d) AHILOPST

G U N P O W D E R
D E G N O P R U W
H O S T P I T A L
order
AHILOPST

9) In a certain code REASONING is written as ASREONGNI,

then how will FRIZZLING be written in the same language?

- a) GNILZZIRF b) ZIRFZGNIL c) IZFRZNGLI d) FIRZZLNIG

1 2 3 4 5 6 7 8 9
R E A S O N I N G

A S R E O N G N I
3 4 1 2 5 6 7 8 9

IZFRZNGLI

10) In a certain code SENSITIVE is written as HVMHRGREV,

then how will HYDROGEN be written in the same language?

- a) SBWILTVM b) MVTLIWBS

19 5 14 13 9 20 9 22 5
S E N S I T I V E

-11 17 -1 -11 9 -13 9 -17 17
H V M H R G R E V

8 22 13 8 18 7 18 5 22
H Y D R O G E N

W