

Solutions – Medium Test Set 2

1. (c) : Let X be the units digit of the number and Y be the tens digit.
The number is $10Y + X$
The reversed number is $10X + Y$
 $(10Y + X) - (10X + Y) = 18$ or $9Y - 9X = 18$
Digits = $X + Y = 10$
on solving $X = 4, Y = 6$
2. (c) : Five years ago the ratio of their ages was 5:3 with the total age being 64 years. Their individual ages will be 40 and 24 years.
Today their ages will be 45 years and 29 years and after 9 years their ages will be 54 and 38 years.
Required ratio will be 27 : 19.
3. (b) : LCM of 70, 84, 280 is 840.
Let total work = 840 units.
Per hour work of $P = \frac{840}{70} = 12$ units / hour
Per hour work of $Q = \frac{840}{84} = 10$ units / hour
Per hour work of $R = \frac{840}{280} = 3$ units / hour
Number of hours they require together =
 $\frac{840}{12+10+3} = \frac{840}{25} = 33$ hours and 36 minutes
4. (d) : The work done by 12 boys in 20 days = $\frac{4}{7}$
So, remaining work need to be done in 6 days = $\frac{3}{7}$
$$\frac{M_1 \times D_1}{W_1} = \frac{M_2 \times D_2}{W_2}$$
$$\frac{12 \times 20}{\frac{4}{7}} = \frac{M_2 \times 6}{\frac{3}{7}}$$

We get, $M_2 = 30$. Hence, 18 extra boys are required.
5. (b) : Let the speed of B = X kmph.
We have $X \times t = 240, (X - 15) \times t = 180$
or $X = 60, X - 15 = 45$
6. (c) :
$$\frac{(27+5)^{332}}{9} = \frac{(5)^{332}}{9} = \frac{5^2 \times (125)^{110}}{9} = 25 \times (-1)^{110} = 7$$
7. (a) : CP of 378 = SP of 525

$$\frac{378}{525} = \frac{SP}{CP}$$

$$\frac{SP}{CP} = 0.72$$

So, 28% loss

8. (c) : Required time $t =$

$$\frac{1760}{2\pi r} = \frac{1760}{\left[2 \times \left(\frac{22}{7}\right) \times \frac{3.5}{2}\right]} = 160 \text{ min.}$$

9. (c) : Let x be the required percent.

Using the successive percentage change rule, we have

$$150 + x + \frac{150x}{100} = 0$$

$$\frac{250x}{100} = -150$$

$$x = -60\%$$

so 60%

10. (b) : If X in m be the length of train, then $\frac{(X + 116)}{Y} = 10$, $\frac{(X + 236)}{Y} = 16$

(Y = speed of train in m/s) Solve to get $X = 84$, $Y = 20$

11. (a) : $6X + 5Y = 218$ (1)

$$5X - 3Y = 24$$
 (2)

Solve to get $X = 18$, $Y = 22$.

12. (c) : As per the problem, we have Length of the first train = 120 m

Length of the second train = 180 m

As per the problem,

$$\frac{(120 + 180)}{(8 + s)} = 5$$

$$8 + s = 60$$

$$s = 52 \text{ m/sec}$$

13. (c) : Rahul can occupy any one of the two corner positions and therefore, Rahul can occupy a position in two ways.

The other four people can seat themselves in $4!$ ways, that is, 24 ways.

Total ways = $2 \times 24 = 48$ ways.

14. (a) : $\frac{(28 - 25)}{(45 - 28)} = \frac{3}{17}$

15. (a) : Let the speeds be $2A$ and A kmph respectively

$$\Rightarrow \frac{216}{3A} = 6$$

$A = 12$ and the speed of $B = 3$ kmph

16. (a) : Let the numbers be x & y

(mean proportion) $^2 = xy$.

So, $xy = 784$

$$x = \frac{784}{y} \quad \dots (1)$$

x, y and 224 are in continued proportion

$$y^2 = 224x \quad \dots (2)$$

$$y^2 = 224 \times \frac{784}{y}$$

$$y^3 = 14 \times 16 \times 28 \times 28$$

$$y = 56 \text{ and } x = 14$$

Alternate Method

Use options and check.

17. (d) : Let the total work by LCM of 20, 24 and 30 i.e. 120 units

$$\text{Work done per day by A and B} = a + b = \frac{120}{20} = 6$$

$$\text{Work done per day by B and C} = b + c = \frac{120}{24} = 5$$

$$\text{Work done per day by A and C} = a + c = \frac{120}{30} = 4$$

$$2(a + b + c) = 15$$

$$\text{So, } a + b + c = 7.5$$

$$\text{Required number of days} = \frac{120}{7.5} = 16 \text{ days}$$

18. (a) : $A + B + C = 18500 \quad \dots (1)$

$$A = B + 25\% \text{ of } B = \frac{5B}{4} \quad \dots (2)$$

$$B = C + 20\% \text{ of } C = \frac{6C}{5} \quad \dots (3)$$

Equation (1) gives,

$$\frac{5B}{4} + \frac{6C}{5} + C = 18500$$

$$\Rightarrow \frac{3C}{2} + \frac{6C}{5} + C = 18500$$

$$\Rightarrow 37C = 185000 \Rightarrow C = 5000$$

$$B = 6000, A = 7500.$$

$$A + B = 13500$$

19. (a) : Let daily working hours & wages per hour before increase be H and W respectively

So his Salary/day = HW

Working hours after increase = $0.82H$, wages per hour = $1.45W$

So his daily salary = $\frac{82}{100}H \times \frac{29}{20}W = \frac{1189}{1000}HW$. Thus an Increase of 18.9%

20. (a) : The bag has 25-paise, 50-paise and 1 -rupee coins in the ratio 8 : 2 : 7. Now this is the ratio of the number of coins while the total value of the coins has been given. So we first need to convert coins into value.

Let the coins be $8x, 2x$ and $7x$ respectively.

$8x$ coins of $1/4$ rupee each = value is Rs. $2x$.

$2x$ coins of $1/2$ rupee each = value is Rs. x .

$7x$ coins of 1 rupee each = value is Rs. $7x$.

Now

$$2x + x + 7x = 770$$

$$10x = 770 \Rightarrow x = 77$$

Number of 25 paise and 50 coins = $10x = 770$ coins

