ricesmart

TOGETHER IN SUCCESS

NTPC 2026

ARKA DEY

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1. I bought two shirts for Rs. 1200. I sold the first one at a loss of 10% and the second at a gain of 15%. If, on the whole I made neither loss nor a gain, find the cost price (in Rs.) of the first shirt.

a) 740 b) 744 c) 704 d) 720

total CP = total SP

$100x + 100y = 90x + 115y$

$10x = 15y$

$\frac{x}{y} = \frac{3}{2}$

$x = \frac{3}{5} \times 1200 = 720$

2. If the interest earned during 2nd year on a certain sum is Rs. 2352 and the rate of interest is 5% per annum compounded annually, then the sum is

a) Rs. 44,055 b) Rs. 44,855 c) Rs. 44,800 d) Rs. 45,115

1st yr rate = 5%

2nd " " = $5 + \frac{5 \times 5}{100}$

$= 5.25\%$ → 2352 Rs.

$P = 100\%$ → $\frac{112}{525} \quad \frac{2352}{21} \times \frac{400}{10000}$

$= 4480$

10% 1st yr I = 100

2nd " I = $100 + \frac{100 \times 10}{100}$

$= 110$

3. M and N start a business. M invests Rs. 46000 more than N for 3 months and N invests for 4 months. M's share is Rs. 453 more than that of N, out of a total profit of Rs. 1359. Find the capital contributed by M.

a) Rs. 73,608 b) Rs. 73,516 c) Rs. 73,715 d) Rs. 73,600 ✓

$$\frac{M}{N} = \frac{(x+46000)\,3}{x \times 4} = \frac{906}{453} = \frac{2}{1}$$

$$\Rightarrow 3x + 138000 = 8x$$

$$5x = 138000$$

$$x = 27600$$

$$M = 27600 + 46000$$

$$= 73600$$

$$M - N = 453$$

$$M + N = 1359$$

$$N = \frac{1359 - 453}{2} = \frac{906}{2} = 453$$

$$M = \frac{1359 + 453}{2} = \frac{1812}{2} = 906$$

4. The current population of a town is 14,680. It increases by 25% and 70% in two successive years but decreases by 20% in the 3rd year. What is the population of the town at the end of the third year?

a) 24,956 b) 24,960 c) 24,953 d) 24,958

$$14680 \times \frac{125}{100} \times \frac{170}{100} \times \frac{80}{100}$$

$$= 1468 \times 17$$

$$= 24956$$

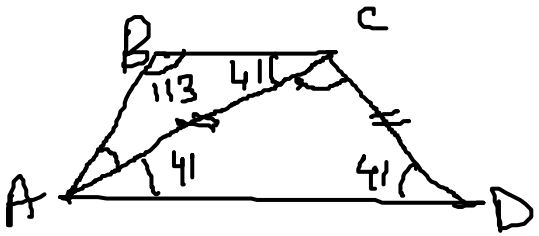
5. Find the greatest number that will divide 49, 97 and 189 so as to leave the same remainder in each case.

a) 5 b) 4 c) 7 d) 3

$$
\begin{array}{r|lll}
 & 97 & 189 & 189 \\
 & -49 & -97 & -49 \\
 & \hline 48 & 92 & 140 \\
\hline 4 & 12, & 23, & 35
\end{array}
$$

6. ABCD is a trapezium in which BC || AD and AC = CD. If ∠ABC = 113° and ∠BAC = 26°, then what is the measure of ∠ACD?

a) 68° b) 65° c) 41° ✓d) 98°



$\angle B = 113$

$\angle BAC = 26$

$\triangle ABC$, $\angle ACB = 180 - (113 + 26)$

$= 180 - 139$

$= 41$

$BC \parallel AD$

$\angle CAD = 41$ (alternate)

$AC = CD$, $\angle ADC = 41$

$\angle ACD = 180 - (41 + 41) = 98$

7. What is the median of the following data? 74, 85, 67, 27, 47, 16, 41, 32, 98, 38, 88

a) 46.5 b) 47 c) 47.5 d) 48

Median =

16, 27, 32, 38, 41, (47), 67, 74, 85, 88, 98

total no. = n = odd = Median = Middle no. → $\frac{n+1}{2}$ th term

n = 11

$= \frac{11+1}{2} = \frac{12}{2}$ th term

$= 6$ th

n = even, Median = $\frac{12}{2}$ th + $\left(\frac{12}{2}+1\right)$ th

$\left[\frac{\frac{n}{2}\text{ th} + \left(\frac{n}{2}+1\right)\text{th}}{2}\right]$ Median = $\frac{6\text{th} + 7\text{th}}{2}$

8. The weight (in kg) of 25 students is as follows: 58, 55, 53, 50, 53, 51, 52, 54, 53, 52, 54, 53, 58, 53, 59, 55, 53, 52, 51, 54, 53, 59, 55, 53, 52 What is the range of the given data?

a) 9 b) 7 c) 6 d) 8

Range = highest − lowest no.

= 59 − 50 = 9

9. Given that $(103)^{0.2} = x$, $(103)^{0.43} = y$, $x^Z = y^6$, then the value of z is close to –

a) 12.9 b) 11.74 c) 12.45 d) 14.16

$x^z = y^6$

$\Rightarrow (103)^{.2z} = (103)^{.43 \times 6}$

$.2z = 2.58$

$\Rightarrow z = \frac{258}{20} = 12.9$

10. In a flower bed, there are 21 rose plants in the first row, 19 in the second row, 17 in the third row and so an. If there are 5 plants in the last row, what is the number of rows?

a) 7 b) 8 c) 9 d) 10

21, 19, 17, - - - - - - 5

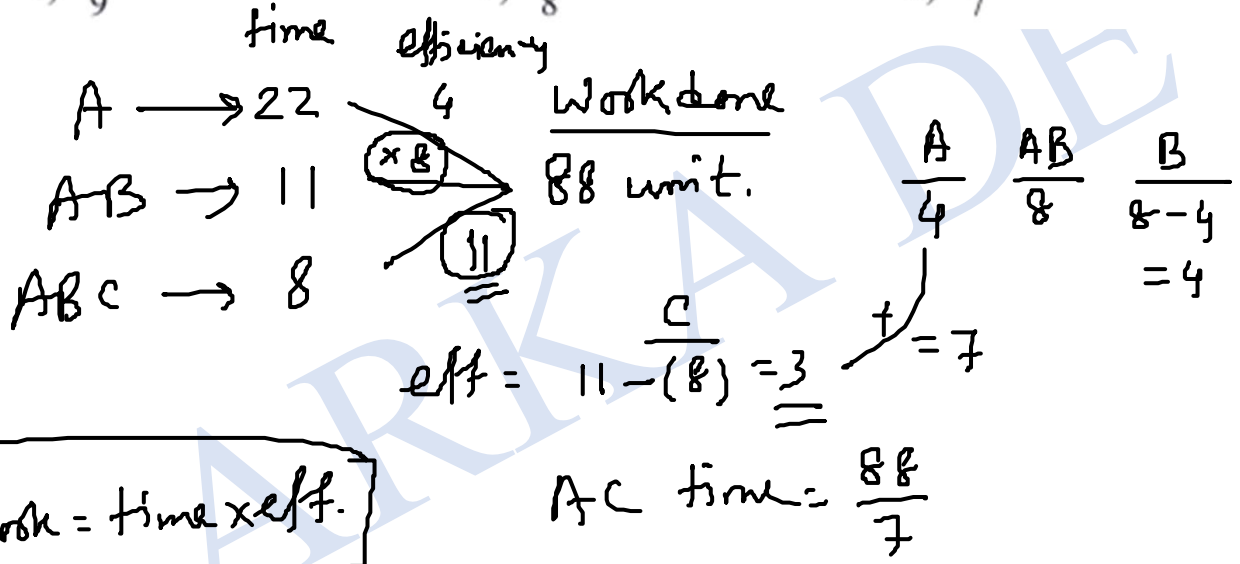
2 2

AP series $\rightarrow n = \frac{\text{last} - \text{first}}{\text{diff}} + 1$

$= \frac{21-5}{2} + 1 = 9$

11. A can do a certain piece of work in 22 days, A and B can together do the same work in 11 days. A, B and C together can do the same work together in 8 days. In how many days can A and C together do the same work?

a) $\frac{94}{9}$ b) $\frac{95}{8}$ c) $\frac{78}{7}$ d) $\frac{88}{7}$ ✓



12. The sum of the lengths of the edges of a cube is equal to the sum of the lengths of the edges of a cuboid whose length, breadth and height are in the ratio 4 : 3 : 1. Find the volume (in sqcm) of the cuboid if the volume of the cube is 512 cubecm.

a) 299 b) 340 c) 324 d) 315

$6 \times 8 = 48 = (4x + 3x + x)2$

$x = 3$

$L = 12,\ B = 9,\ H = 3$

$a^3 = 512$

$a = 8$ cm

$Vol = 12 \times 9 \times 3$

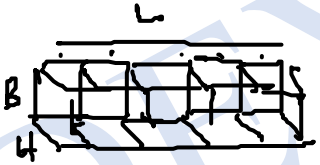
$= 324$

13. Five solid cubes, each of volume 1,09,41,048 cubecm are joined end to end to form a cuboid. What is the lateral surface area (in sqcm) of the cuboid?

a) 5,91,408 b) 5,91,310 c) 5,91,663 d) 591312

$a^3 = 10941048$

$a = \sqrt[3]{10941048}$



10941

10941048

$= 222$

$2^3 = 8$

$20^3 = 8000$

$21^3 = 9261$

$22^3 = 10648$

$23^3 = 12167.$

$L = 5 \times 222 = 1110$

$B = 222, \quad H = 222$

L.S.A $= 2(L+B)H$

$= 2(1110+222)222$

$= 444 \times 1332$

$= 591408$

14. On a circular path of 2742 m Riya and Trisha start walking from the same point but in opposite direction at 4.6 m/s and x m/s, respectively. They will meet for the first time after 457 seconds. Find the value of x.

a) 0.8 b) 2.2 c) 1.1 d) 1.4 ✓

$$(4.6 + x) \times 457 = 2742$$

$$\Rightarrow 4.6 + x = \frac{2742}{457} = 6$$

$$x = 6 - 4.6 = 1.4$$

15. The sides (in cm) of a right angle triangle are (x –18), (x – 25) and x, its area (in sqcm) is

a) 1329 b) 1314 c) 1311 d) 1320

$x^2 = (x-18)^2 + (x-25)^2$

$x^2 = x^2 - 36x + 324 + x^2 - 50x + 625$

$x^2 - 86x + 949 = 0$

$x = 13, 73$

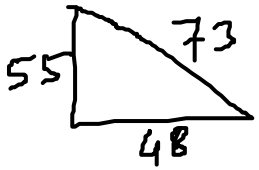
$x \neq 13$

$x = 73$

13 | 949

73

$73 - 18 = 55$, $73 - 25 = 48$

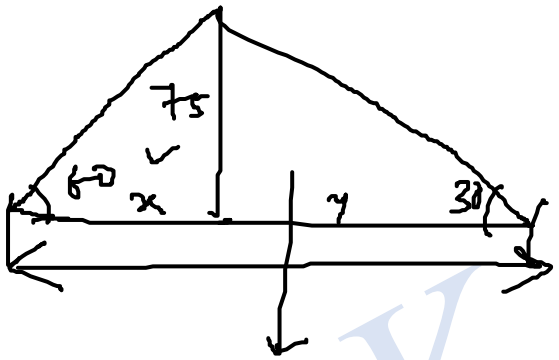


$\frac{1}{2} \times 55 \times 48$

$= 1320$

16. Two men on either side of a temple of 75 metres height observe its top at the angles of elevation 30° and 60° respectively. The distance (in metres) between the two men is –

a) $\frac{20}{\sqrt{3}}$ b) $\frac{100}{\sqrt{3}}$ c) $\frac{200}{\sqrt{3}}$ d) $100\sqrt{3}$



$\frac{75}{x} = \tan 60 = \sqrt{3}$

$x = \frac{75}{\sqrt{3}} = 25\sqrt{3}$

$\frac{75}{y} = \tan 30 = \frac{1}{\sqrt{3}}$

$y = 75\sqrt{3}$

$x + y$

$= 25\sqrt{3} + 75\sqrt{3}$

$= 100\sqrt{3}$

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Thank You

Stay safe. Work hard. See you next day.

Every Wed (11 a. m.)

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