

M. Prakash Institute
23 November 2025

Solutions of STD VIII - Entrance Test 1
Time: 3 hours

Note: Q1 to Q10 are of 2 marks each, Q11 to Q30 are of 4 marks each.

Total Marks: 100

Paper Type:AD

Student Receipt number:

Student Name:

Q.	1	2	3	4	5	6	7	8	9	10
A.	29	20	05	78	05	24	49	25	58	05
Q.	11	12	13	14	15	16	17	18	19	20
A.	25	84	96	24	35	50	20	20	12	30
Q.	21	22	23	24	25	26	27	28	29	30
A.	59	90	50	38	20	60	84	00	60	18

Q1. Find the number of integers N between 1000 and 2000 such that N is divisible by 5 and 7 .

Solution: L.C.M of 5 and 7 = 35.

1st No. divisible by 35 = 1015 = 35×29

Last No. divisible by 35 = 1995 = 35×57

No. of integers = $57 - 29 + 1 = 29$

Ans. 29.

Q2. Cost of manufacturing a toy is divided between materials, labour and overheads in the ratio 3 : 4 : 1. If the materials cost Rs. 7.5, then the cost of manufacturing the toy is

Solution: Ratio: $M : L : O = 3x : 4x : 1x$

Given: $3x = 7.5 \Rightarrow x = 2.5 \Rightarrow$ Total cost = $8x = 8 \times 2.5 = 20$ **Ans. 20.**

Q3. A certain sum put up at compound interest amounts to Rs. 8,820 in 2 years and Rs. 9,261 in 3 years. Find rate of interest.

Solution: Difference = $9261 - 8820 = 441$.

This is the interest for one year on Rs. 8820 $\Rightarrow 441 = \frac{8820 \times R \times 1}{100} \Rightarrow R = 5\%$ **Ans. 5.**

Q4. Find the difference between the sums of all odd numbers and even numbers from 50 to 205.

Solution: Required difference = $(-50) + 51 - 52 + 53 \cdots - 204 + 205$. Total numbers between 205 and 50 is $205 - 50 + 1 = 156$, so there 78 pairs like $(-50 + 51), (-52 + 53), \cdots$ Each difference is 1.

Ans. 78.

Q5. Three fractions having equal denominators, have numerators 5, 17, 13 respectively. If the sum of these fractions is 7 , then their denominator is

Solution: $5 + 17 + 13 = 35$. Since the answer is 7, 35 needs to be divided by 5. **Ans. 5.**

Q6. Four numbers are in proportion. Their extreme terms are 2 and 54. One of the middle terms is thrice the other one. Find the sum of the middle terms.

Solution: If the numbers are 2, x , $3x$, 54, then we have $\frac{x}{2} = \frac{3x}{54} = 3 \Rightarrow x = 6 \Rightarrow x + 3x = 4x = 24$.

Ans. 24.

Q7. LCM of two coprime numbers is 2592. Find the difference between the two numbers. (Coprime numbers means they do not have any common factor other than 1.)

Solution: L C M = 2592 = 32×81 Difference = $81 - 32 = 49$. **Ans. 49.**

Q8. $(2^8 \times 2^{-2})^x = 32$ Find $30x = ?$

Solution: $(2^8 \times 2^{-2})^x = 32 \Rightarrow 2^{6x} = 2^5 \Rightarrow 6x = 5 \Rightarrow 30x = 25$. **Ans. 25.**

Q9. Y is the average of first seven consecutive prime numbers. Find $7Y$

Solution: $\frac{2 + 3 + 5 + 7 + 11 + 13 + 17}{7} = Y \Rightarrow 7Y = 58$. **Ans. 58.**

Q10. 0.15% of $33\frac{1}{3}\%$ of $10,000 = ?$

Solution: $\frac{0.15}{100} \times \frac{100}{3} \times 10000 = 5$. **Ans. 5.**

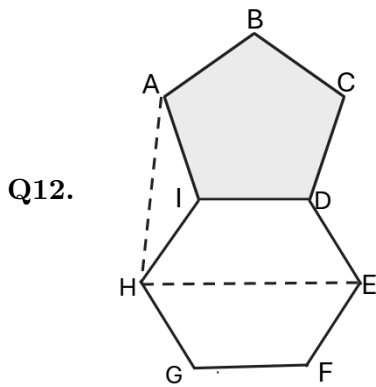
Q11. A clock was repaired and started by setting time at 10:10 am. By how many degrees would the hour hand rotate when the clock struck 11:00 a.m on the same day.

Solution: 10 : 10am to 11 : 00am = 50 min.

Hour hand:- 1 min $\equiv \frac{1}{2}$ deg.

$\Rightarrow 50 \text{ min} \equiv 25\text{deg}$.

Ans. 25.



Regular pentagon and a regular hexagon share a common side ID.
find the measure of $\angle AHE$

Solution:

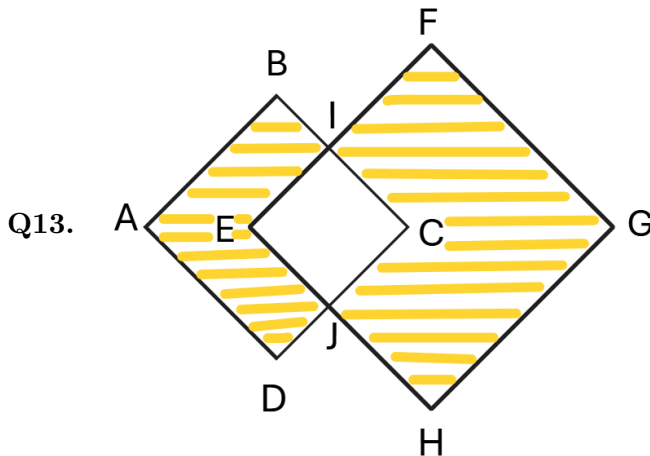
$$\angle AIH = 360^\circ - (108 + 120^\circ) = 132$$

$$\angle AHI = \frac{180^\circ - 132}{2}$$

$$= 24$$

$$\Rightarrow \angle AHE = 24 + 60 = 84.$$

Ans. 84.



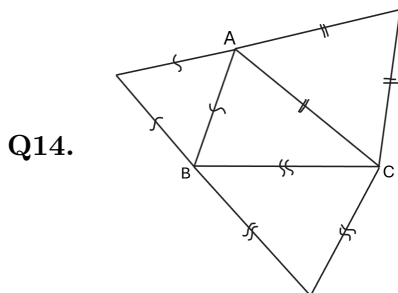
As shown in the figure two squares $\square ABCD$ and $\square EFGH$ with areas 256 and 400 respectively overlap each other to form a square $\square EICJ$. The difference in areas of shaded portion is equal to the area of $\square EICJ$. Find the perimeter of the whole figure.

Solution: Sides of $\square ABCD$ and $EFGH = 16, 20$.

Side of $\square CIEJ = 12$.

Perimeter = $32 + 40 + 16 + 8 = 96$ m.

Ans. 96.



Equilateral triangles are drawn on all three sides of $\triangle ABC$ as shown in figure. If areas of the equilateral triangles are $16\sqrt{3}$, $25\sqrt{3}$, and $9\sqrt{3}$; find the area of $\triangle ABC$.

Solution: Sides are:- S_1, S_2 and S_3 . $\frac{\sqrt{3}}{4} S_1^2 = 16\sqrt{3} \Rightarrow S_1^2 = 16 \times 4 \Rightarrow S_1 = 8$.

$S_2^2 = 25 \times 4 \Rightarrow S_2 = 10$. $S_3^2 = 9 \times 4 \Rightarrow S_3 = 6$

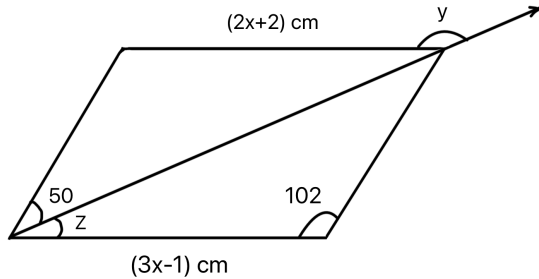
$\Rightarrow \Delta$ is right triangle $\Rightarrow \text{Area} = \frac{1}{2} \times 6 \times 8 = 24$. **Ans. 24.**

Solution:

$$T_1 = \frac{1800}{10} = 180 \text{ s}, \quad T_2 = \frac{1800}{15} = 120 \text{ s}, \quad T_3 = \frac{1800}{12} = 150 \text{ s}$$

$$\text{LCM}(180, 120, 150) = 1800 \text{ s} = 30 \text{ minutes} \quad \text{Ans. 30.}$$

Q21.



$\square ABCD$ is a parallelogram .
Find values of $y - 3(x + z)$.

Solution: 1. Finding x :

$$2x + 2 = 3x - 1 \Rightarrow x = 3$$

2. Finding z :

$$50^\circ + z + 102^\circ = 180^\circ \Rightarrow z = 28^\circ$$

3. Finding y :

$$y = 180^\circ - z = 152^\circ$$

4. Expression:

$$y - 3(x + z) = 152 - 3(3 + 28) = 152 - 93 = 59 \quad \text{Ans. 59.}$$

Q22. The fare for a half ticket for railway is half the fare for a full ticket. The reservation charges are same for both types of tickets. Rita booked one full ticket from Delhi to Pune and paid Rs. 2530. Nina booked one full ticket and one half ticket for the same journey and paid Rs. 3810. Find the total reservation charges paid by Rita and Nina.

Solution: Let full fare = F , reservation per ticket = R

$$F + R = 2530, \quad F + \frac{F}{2} + 2R = 3810$$

$$\Rightarrow \frac{F}{2} + R = 1280, \quad \text{subtracting: } \frac{F}{2} = 1250 \Rightarrow F = 2500$$

$$R = 2530 - 2500 = 30, \quad \text{Total reservation charges} = 3R = 90. \quad \text{Ans. 90.}$$

Q23. A vendor bought lemons at 6 for a rupee and sold them at 4 for a rupee. What is his gain percentage?

Solution:

$$\text{CP} = \frac{1}{6}, \quad \text{SP} = \frac{1}{4} \Rightarrow \text{Profit} = \frac{1}{12} \Rightarrow \% \text{ Gain} = \frac{1/12}{1/6} \times 100 = 50\% \quad \text{Ans. 50.}$$

Q24. The average weight of a group of 8 elephants is increased by 200 kg when one elephant, weighing 2,200 kg, is replaced by a new elephant. What is the weight of the new elephant in quintals?

Solution:

$$8\bar{A} - 2200 + \text{new} = 8(\bar{A} + 200) \Rightarrow \text{new} = 3800 \text{ kg} = 38 \text{ quintals} \quad \text{Ans. 38.}$$

Q25.

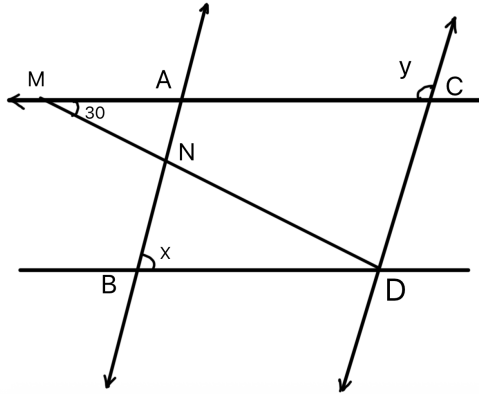
$$11.3 \times \frac{1.565 \times 1.565 + 3.13 \times 0.435 + 0.435 \times 0.435}{1.565 \times 1.565 - 0.435 \times 0.435} = ?$$

Solution:

$$a = 1.565, \quad b = 0.435$$

$$11.3 \cdot \frac{a^2 + 2ab + b^2}{a^2 - b^2} = 11.3 \cdot \frac{(a+b)^2}{(a+b)(a-b)} = 11.3 \cdot \frac{a+b}{a-b}$$

$$a+b = 2.000, \quad a-b = 1.130 \Rightarrow 11.3 \times \frac{2}{1.13} = 20 \quad \text{Ans. 20.}$$

Q26.

$DM \perp AB, \overline{AB} \parallel \overline{CD}, AC \parallel BD$
Find $(y^\circ - x^\circ)$ if $m\angle CMD = 30^\circ$

Solution:

$$\angle MNA = 90^\circ \Rightarrow \angle MAN = 60^\circ \Rightarrow x = 60^\circ$$

$$x + y = 180^\circ \Rightarrow y = 120^\circ$$

$$y - x = 120^\circ - 60^\circ = 60^\circ \quad \text{Ans. 60.}$$

Q27. The sum of a two-digit number and the number formed by reversing its digits is 132 . The difference between the two digits is 4 . Find the original number, given that the tens digit is larger than the units digit.

Solution: Let number = $10T + U$, then its reverse = $10U + T$

$$(10T + U) + (10U + T) = 132 \Rightarrow 11(T + U) = 132 \Rightarrow T + U = 12$$

$$T - U = 4 \Rightarrow T = 8, U = 4 \quad \text{Ans. 84.}$$

Q28.Solve for x :

$$\frac{x}{x+3} + \frac{x-1}{2-x} = \frac{3x+3}{(x+3)(x-2)}$$

$$\text{Solution: LHS} = \frac{x}{x+3} + \frac{x-1}{2-x} = \frac{x(2-x) + (x-1)(x+3)}{(x+3)(2-x)} = \frac{4x-3}{(x+3)(2-x)}.$$

$$\text{So, LHS=RHS gives } \frac{4x-3}{(x+3)(2-x)} = \frac{3x+3}{(x+3)(x-2)} \Rightarrow 4x-3 = -3x-3 \Rightarrow x = 0. \quad \text{Ans. 0.}$$

Q29. On 15th October 2025, the price of silver on was an all-time high of Rs. 1,95,000 per kilogram, which is 30% higher than the price on 1st October. Later, by the end of the month the price dropped by 20% from its peak on 15th October. What is the difference in the price of silver per 10 grams between 1st October and 31st October?

Solution:

$$P_2 \text{ (Price on 15 Oct)} = 195000 = 1.30P_1 \Rightarrow P_1 = 150000$$

$$P_3 = 195000 \times 0.8 = 156000$$

$$\text{Per 10 g difference} = \frac{156000 - 150000}{100} = 60 \quad \text{Ans. 60.}$$

Q30. Find the remainder when $12x^2 + 7x - 1$ is divided by $x - 1$

Solution: Do the long division. $12x^2 + 7x - 1 = (x - 1)(12x + 19) + 18. \quad \text{Ans. 18.}$