

Model Question Paper

Mathematics

Class: IX going to X

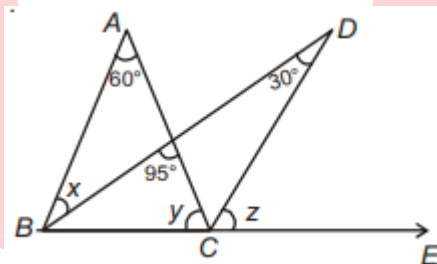
Time: 22.5 mints

F.M. $15 \times 4 = 60$

For every correct answer examinee will be awarded +4 marks and for every wrong answer it will be – 1 mark

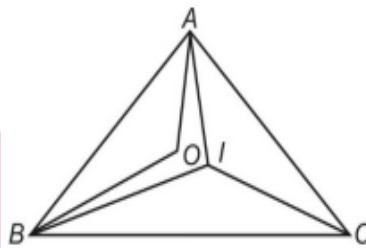
1. If a, b and c are positive integers, then $(a - b - c)^3 - a^3 + b^3 + c^3$ is always divisible by
 (A) Only $(a + b)$ (B) Only $(b + c)$ (C) $3(a - b)$ (D) $3(a + b)(b + c)(a + c)$

2. In the following figure, if ABC and BDC are two triangles, then $x + y + z$ equals

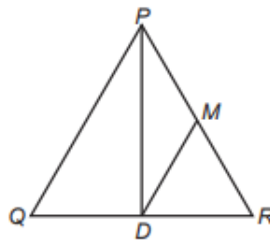


- (A) 120° (B) 150° (C) 180° (D) 135°
3. If the graph of the linear equation $24x + 7y = 168$ cuts the x-axis and y-axis at A and B respectively, then length of AB is equal to
 (A) 25 units (B) 7 units (C) 24 units (D) 31 units
4. If $(x^2 - 1)$ is a factor of $ax^{198} + bx^{195} + cx^{192} + dx^{187} + e$, where a, b, c, d and e are non-zero integers, then
 (A) $a + c = 0$ (B) $c + e = 0$ (C) $b + d = 0$ (D) $a + d = 0$
5. In $\triangle ABC$, AD and AE are respectively bisector of $\angle A$ and perpendicular on BC. If $\angle EAD = 10^\circ$ and $\angle ABC : \angle ACB = 2 : 1$, then $\angle ACB$ equals
 (A) 70° (B) 20° (C) 50° (D) 60°

6. If $7^{2025} - 7^{2024} - 7^{2023} + 7^{2022} = K \cdot 7^{2022}$, then the value of $\sqrt{k+1}$ is
 (A) 16 (B) 8 (C) 14 (D) 17
7. If $x = \frac{7}{8-5\sqrt{2}}$, then the value of $(2x^3 - 24x^2 + 71x + 47)$ is
 (A) 182 (B) 108 (C) 75 (D) 149
8. A linear equation $7x + 11y = 77$ (where x and y are natural numbers) have
 (A) Unique solution (B) No solution
 (C) Infinitely many solutions (D) Only two solutions
9. If $a = 62$, $b = 66$ and $c = 68$, then the value of $(a^2 + b^2 + c^2 - ab - bc - ca)$ is
 (A) 25 (B) 26 (C) 28 (D) 29
10. A shopkeeper mixed two varieties of sugar costing ₹45/kg and ₹54/kg so that the mixture costs ₹50/kg. If he mixes 12 kg of sugar costing ₹45/kg, then the quantity of sugar costing ₹54/kg that he mixes is (in kg)
 (A) 20 (B) 15 (C) 12 (D) 18
11. In $\triangle ABC$, O is the point of intersection of altitudes from vertex A and B and I is the point of intersection of bisectors of $\angle A$, $\angle B$ and $\angle C$. If $\angle A : \angle B : \angle C = 3 : 4 : 2$, then $\angle IAO$ is
 (A) 10° (B) 20° (C) 40° (D) 50°



12. If $(2^a - 4)^3 + (4^a - 2)^3 = (4^a + 2^a - 6)^3$, then the greatest value of a (where $2^a + 4^a \neq 6$) is
 (A) 3 (B) 7 (C) 0 (D) 2
13. The sum of the digits of product $2^{2021} 5^{2024}$ is
 (A) 4 (B) 6 (C) 2 (D) 8
14. In $\triangle PQR$ and $\triangle PDR$, PD and DM are the medians of the triangle, such that $DM = \sqrt{\frac{PR^2 - PM^2 - MR^2}{2}}$.
 If two sides of $\triangle PQR$ are 16 cm and 36 cm, then perimeter of $\triangle PQR$ is



- (A) 76 cm (B) 88 cm (C) 82 cm (D) 100 cm

15. If $P(5, -2)$ and $R(-5, 2)$ are the coordinates of the opposite vertices of a rectangle PQRS, then the coordinates of the vertex Q and S can be

- (A) $(5, 2), (-5, -2)$ (B) $(-5, 7), (5, 7)$ (C) $(0, -3), (0, 7)$ (D) $(0, 3), (0, -7)$

