



**SPECIMEN QUESTIONS  
FOR**

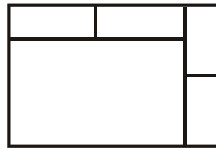
**CLASS - 9**

# Class : 9

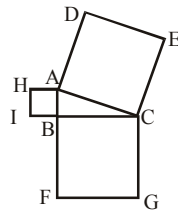
- $a^2b = 5$  and  $a^2 + 4b^2 = 37$ , then  $ab = ?$   
(a) 1      (b) 2      (c) 3      (d) 4
- What is the relation between  $(\sqrt{5} + \sqrt{3})$  &  $(\sqrt{6} + \sqrt{2})$   
(a)  $(\sqrt{5} + \sqrt{3}) > (\sqrt{6} + \sqrt{2})$   
(b)  $(\sqrt{5} + \sqrt{3}) < (\sqrt{6} + \sqrt{2})$   
(c)  $(\sqrt{5} + \sqrt{3}) = (\sqrt{6} + \sqrt{2})$       (d) None of these.
- Arrange in increasing order \_\_\_\_\_  
(3 : 5), (4 : 9), (5 : 11) and (9 : 13)  
(a)  $(3 : 5) > (4 : 9) > (5 : 11) > (9 : 13)$   
(b)  $(4 : 9) < (3 : 5) < (9 : 13) < (5 : 11)$   
(c)  $(9 : 13) > (3 : 5) > (5 : 11) > (4 : 9)$   
(d)  $(4 : 9) < (5 : 11) < (3 : 5) < (9 : 13)$
- What is the equation of parallel axis of x axis ?  
(a)  $x = a$ , where a is constant  
(b)  $y = a$  where a in content  
(c)  $x = a, y = a$  where a in constant  
(d) None of these.
- In an exam, 72% and 78% of examiners passed in mathematics and Bengali. If no examiners have failed in both the subjects then what percentage of the examiners passed in both the subject ?  
(a) 35%      (b) 40%      (c) 45%      (d) 50%
- Express  $(x + 1)(x + 2)(x + 6)(x + 7) + (x + 4)^2$  as a square number.  
(a)  $(x^2 + 8x + 10)$       (b)  $(x^2 + 8x - 10)$   
(c)  $(x^2 + 8x + 10)^2$       (d)  $(x^2 + 8x - 10)^2$
- The ratio of the sum of the ages of father and mother to that of their two sons are 24 : 3 : 1. Elder brother is 6 year older than younger brother. The ratio age of father & mother is 5:4. Then what is the age of two sons, father & mother ?  
(a) Father - 40, Mother -32, elder brother-9, younger brother-2  
(b) F-38, M-34, EB-8, YB-3  
(c) F-40, M-32, EB-9, YB-3      (d) None of these.
- Solve :-  $\frac{x-a}{b} + \frac{x-b}{a} + \frac{x-3a-3b}{a+b} = 0$   
(a)  $x = a$       (b)  $x = b$       (c)  $x = a-b$       (d)  $x = a + b$
- If  $x\left(3 - \frac{2}{x}\right) = \frac{3}{x}$ , then find  $x^2 + \frac{1}{x^2}$  ?  
(a) 22 / 7      (b) 22 / 9  
(c) 23 / 9      (d) None of these.
- In a triangle  $\Delta ABC$  the three medians intersect at D, if E and F are mid points of BD and CD respectively the  
(a)  $\frac{1}{11} \Delta ABC$       (b)  $\frac{1}{9} \Delta ABC$   
(c)  $\frac{1}{13} \Delta ABC$       (d)  $\frac{1}{12} \Delta ABC$

11. The average marks of boys in a class is 52 and that of girls is 42. The average marks of boys and girls combined is 50. What is the percentage of boys in the class?  
 (a) 65% (b) 70% (c) 80% (d) 60%
12. Resolve into factors:  $-x^2 + 2xy + y^2 - 5x - 5y + 6$   
 (a)  $(x + y - 1)(x + y - 6)$   
 (b)  $(x - y - 2)(x - y - 3)$   
 (c)  $(x - y - 1)(x - y - 6)$   
 (d)  $(x + y - 2)(x + y - 3)$
13. Factorise :  $a^2b^2 - a^2 - b^2 + 1$   
 (a)  $(b + 1)(b - 1)(a^1)^2$  (b)  $(b^{21})(a^{21})$   
 (c)  $(b^2 - 1)(a^1)$  (d) None of these.
14. Due to increase in price of petrol by 25%, a Car owner reduces the consumption of petrol by 25%. What would be the change in percentage of expenditure towards the consumption of petrol by the person.  
 (a) reduced by 6.25% (b) increased by 6.25%  
 (c) reduced by 6.75% (d) increased by 6.75%
15. 90% of the students in a School passed in Bengali, 85% passed in Math and 150 students passed in both the subjects. If no students failed in both subjects, find the total no of students.  
 (a) 180 (b) 200 (c) 150 (d) 250
16. Shibendra sells a watch at 15% profit. If the cost price of watch was 5% less than the original cost price and selling price was Rs. 21 less than the original selling price then profit of Shibendra would have been 10%. What was the actual cost price of the watch ?  
 (a) Rs. 100 (b) Rs. 200 (c) Rs. 300 (d) Rs. 400
17. If  $\frac{2a+b}{a+4b} = 3$ , then  $\frac{a+b}{a+2b} = ?$   
 (a)  $\frac{10}{9}$  (b)  $\frac{11}{9}$  (c)  $\frac{13}{9}$  (d)  $\frac{16}{9}$
18. If  $3x + \frac{1}{2x} = 5$ , then  $8x^3 + \frac{1}{27x^3} = ?$   
 (a)  $30\frac{10}{27}$  (b)  $11\frac{12}{13}$  (c)  $10\frac{7}{12}$  (d)  $13\frac{12}{19}$
19. A Car covers a path at a uniform velocity. Had the velocity of the Car been less by 5 km/hr., the time required to cover the same path would have been 4 hours more. Again, the time required to cover the path would have been 5 hours less, had the velocity of the Car been more by 10 km/hr.. Determine the distance of the path and the velocity of the Car.  
 (a) 600 km, 30 km/hr. (b) 600 km, 20 km/hr.  
 (c) 500 km, 30 km/hr. (d) None of these.
20. Determine the values of  $r$  for which  $rx - 6y = 1$  and  $x + (r - 5)y = 1$  has no solutions ?  
 (a)  $r = 1, 2$  (b)  $r = 2, 3$  (c)  $r = 3, 4$  (d)  $r = 4, 5$
21. If  $x = a^2 - bc$ ,  $y = b^2 - ca$  and  $z = c^2 - ab$  then  
 (a)  $(x^3 + y^3 + z^3 - 3xyz) = (a^3 + b^3 + c^3 - 3abc)$   
 (b)  $(x^3 + y^3 + z^3) = (a^3 + b^3 + c^3)$   
 (c)  $(x^3 + y^3 + z^3 - 3xyz) = (a^3 + b^3 + c^3 - 3abc)^2$   
 (d)  $(x^3 + y^3 + z^3) = (a^3 + b^3 + c^3)^2$
22. In a  $\triangle ABC$ ,  $A + C = 140^\circ$  and  $B + 2C = 180^\circ$  then  
 (a)  $AB < AC$  (b)  $AB = AC$  (c)  $AB > AC$  (d) None of these.

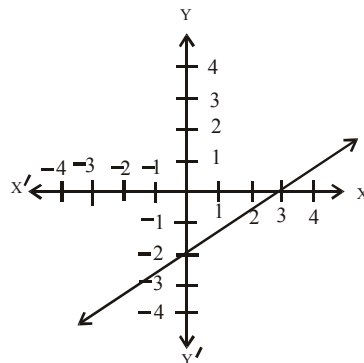
23. The ratio of angles in a triangle is 2 : 3 : 5. The triangle is  
 (a) right angled triangle (b) acute angled triangle  
 (c) obtuse angled triangle (d) Can't be said
24. The two medians BE and CF of  $\Delta ABC$  intersect at point G, then  
 (a)  $\square AFGE = \Delta GBC$  (b)  $\square AFGE = 2\Delta GBC$   
 (c)  $\square AFGE = \frac{3}{2} \Delta GBC$  (d)  $\square AFGE = \frac{4}{3} \Delta GBC$
25.  $a$  and  $b$  are the length of two adjacent of a right angled triangle and  $p$  is the perpendicular drawn to the hypotenuse from the opposite vertex then  
 (a)  $p^2 = a^2 + b^2$  (b)  $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$   
 (c)  $\frac{1}{p^2} = \frac{1}{a^2 + b^2}$  (d)  $p^2 = \frac{a^2 + b^2}{ab}$
26.  $l + m + n = 9$  and  $l^2 + m^2 + n^2 = 31$ , then the value of  $lm + mn + nl$  is  
 (a) -25 (b) 25 (c) 20 (d) -20
27. The number  $5416*6$  is a perfect square, the '\*' marked digit is  
 (a) 5 (b) 6 (c) 4 (d) 9
28. What is the number of rectangles in the following figure ?



- (a) 6 (b) 7 (c) 9 (d) 11
29. All the three quadrilaterals ADEC, ABHI and BCGF are squares and  $\angle ABC = 90^\circ$ . If the area of ADEC =  $x^2$  and area of ABHI =  $y^2$  ( $x^2 > y^2$ ), then the area of BCGF is



- (a)  $(x + y)(x - y)$  (b)  $(x - y)^2$   
 (c)  $(x + y)^2$  (d) None of these
30. The graph shows which of the following equations



- (a)  $4x - 5y = 12$  (b)  $3x - 4y = 7$   
 (c)  $2x - 3y = 6$  (d) None of these

**Passage for question number 1 to 5.**

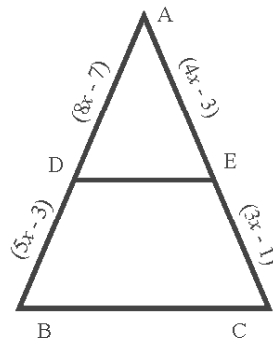
$x \cup y$  expresses both the parts of  $x$  and  $y$  (excluding all repetitions) and  $x \cap y$  expresses the common parts between both  $x$  and  $y$ . If  $A = \{1,2,3,4\}$ ,  $B = \{2,5,7\}$ ,  $C = \{1,2,9,11\}$  the answer the following

31.  $(A \cup B) \cup C = ?$   
(a)  $A \cup B$  (b)  $A \cup C$  (c)  $A \cup (B \cup C)$  (d) None of these.
32.  $A \cup (B \cap C) = ?$   
(a)  $A \cup B \cap C$  (b)  $(A \cup B) \cap (A \cup C)$  (c)  
(d)  $(A \cup B) \cup (A \cup C)$  (d) None of these.
33.  $A \cap (B \cap C) = ?$   
(a)  $A \cap B \cap C$  (b)  $(A \cap B) \cup C$   
(c)  $(A \cap B) \cup (A \cap C)$  (d) None of these.
34.  $A \cup B = ?$   
(a)  $B \cup A$  (b)  $B \cap A$  (c) A (d) B
35.  $A \cap C = ?$   
(a)  $\{1,2\}$  (b)  $\{1\}$  (c)  $\{2\}$  (d) None of these.
36. Find the value of K for which the given polynomial  $(x^4 - x^3 + 11x^2 - x + k)$  is divisible by  $(x-3)$   
(a) 35 (b) 150 (c) -150 (d) -35
37. Arrange in ascending order :  $3^{\frac{1}{3}}, 2^{\frac{1}{2}}, 8^{\frac{1}{4}}$   
(a)  $2^{\frac{1}{2}} > 3^{\frac{1}{3}} > 8^{\frac{1}{4}}$  (b)  $3^{\frac{1}{3}} > 2^{\frac{1}{2}} > 8^{\frac{1}{4}}$   
(c)  $2^{\frac{1}{2}} < 3^{\frac{1}{3}} < 8^{\frac{1}{4}}$  (d)  $3^{\frac{1}{3}} < 2^{\frac{1}{2}} < 8^{\frac{1}{4}}$
38. A trader claims to sell his goods at cost price. But he gives only 900 gm. for every one kg. Find his profit percentage,  
(a)  $11\frac{1}{9}\%$  (b)  $9\frac{1}{11}\%$  (c) 10% (d)  $12\frac{1}{2}\%$
39. Vertices of a quadrilateral ABCD are A(0,0) B(4,5) C(9,9) D(5,4). What is the shape of the quadrilateral?  
(a) Square (b) Rectangle but not a square.  
(c) Rhombus (d) parallelogram but not a rhombus.
40. If  $A^{\frac{1}{A}} = B^{\frac{1}{B}} = C^{\frac{1}{C}}$ ,  $A^{BC} + B^{AC} + C^{AB} = 729$ , which of the following equals  $A^{\frac{1}{A}}$   
(a)  $\sqrt[ABC]{81}$  (b)  $\sqrt{2}$  (c)  $\sqrt[ABC]{27}$  (d)  $\sqrt[ABC]{9}$
41. Find the value of  $k$ , if the points (10, 14), (-3, 3) and (k, -8) are collinear.  
(a) 16 (b) 18 (c) -18 (d) -16
42. An escalator is moving downwards. A takes 140 steps to reach the top from the bottom of an escalator. B takes 60 steps to reach the bottom from the top of the escalator. Time taken

by B to reach the bottom is same as the time during which A takes 20 steps. How many steps are there from the bottom to the top of the escalator ?

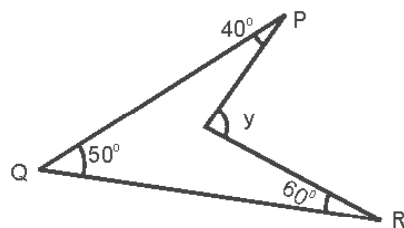
- (a) 70 (b) 60 (c) 90 (d) 80

43. If  $x:y = 3:5$  find the duplicate ratio of  $(3x+y) : (5x-y)$   
 (a)  $49 : 25$  (b)  $25 : 9$  (c)  $36 : 25$  (d)  $49 : 36$
44. Find the product of intercepts made by the line  $7x-2y-14 = 0$  with the co-ordinate axes.  
 (a) -7 (b) 2 (c) 14 (d) -14
45. For what value of 'k' the HCF of  $x^2+x+(5k-1)$  and  $x^2 - 6x + (3k+11)$  is  $(x-2)$   
 (a) 1 (b) 2 (c) -2 (d) -1
46. If  $f$  and  $g$  are two polynomials of degrees 3 and 4 respectively, then what is the degree of  $f-g$   
 (a) 1 (b) 2 (c) 4 (d) cannot be determined
47. If  $P$  denotes ' $\div$ ',  $Q$  denotes ' $\times$ ',  $R$  denotes ' $+$ ' and  $S$  denotes ' $-$ ', then  
 $18Q12P4R5S6 = ?$   
 (a) 35 (b) 53 (c) 59 (d) 36
48. Find the value of X from the figure given below if  $DE \parallel BC$ .



- (a) 1 (b) 5 (c) -1 (d) 2

49. In the figure given below find the measure of angle y.



- (a)  $150^\circ$  (b)  $90^\circ$  (c)  $100^\circ$  (d)  $110^\circ$

50. Which of the following numbers is rational

- (a)  $(\sqrt{3} + \sqrt{2}) + (\sqrt{3} - \sqrt{2})$  (b)  $(\sqrt{3} + \sqrt{2})(\sqrt{3} - \sqrt{2})$   
 (c)  $(\sqrt{3} + \sqrt{2}) - (\sqrt{3} - \sqrt{2})$  (d)  $(\sqrt{3} + \sqrt{2}) \div (\sqrt{3} - \sqrt{2})$

51. In  $\Delta ABC$ ,  $DE \parallel BC$ , where D is a point on AB and E is a point on AC. DE divides the area of  $\Delta ABC$  into two equal parts. Then,  $DB : AB$  is equal to

- (a)  $(\sqrt{2} - 1) : \sqrt{2}$  (b)  $\sqrt{2} : (\sqrt{2} - 1)$  (c)  $\sqrt{2} : (\sqrt{2} + 1)$  (d)  $(\sqrt{2} + 1) : \sqrt{2}$

52. ABCD is a rectangle. The diagonals AC and BD intersect at O. If AB = 32cm and AD = 24cm, then what is OD equal to ?  
 (a) 22 cm (b) 20cm (c) 18cm (d) 16cm.
53. An equilateral  $\Delta$  TQR is drawn inside a square PQRS. The value of  $\angle$ PTS is  
 (a)  $75^\circ$  (b)  $90^\circ$  (c)  $120^\circ$  (d)  $150^\circ$
54. If ABCD is a rectangle and P,Q,R,S are the mid-points of AB, BC, CD and DA respectively., then the area of the quadrilateral PQRS is equal to  
 (a)  $\frac{1}{3}$  ar (ABCD) (b)  $\frac{3}{4}$  ar (ABCD) (c)  $\frac{1}{2}$  ar (ABCD) (d) ar (ABCD)
55. 10, 110, 29, 93, ?  
 (a) 44 (b) 128 (c) 40 (d) 82
56. 7, 14, 42, 168, \_\_\_\_\_  
 (a) 672 (b) 840 (c) 830 (d) 900
57. Raj travelled from a point X straight to Y at a distance of 80 metres. He turned right and walked 50 metres, then again turned right and walked 70 metres. Finally, he turned right and walked 50 metres. How far is he from the starting point ?  
 (a) 10 metres (b) 20 metres (c) 50 metres (d) 70 metres
58. Determine the L.C.M :  $x^6 - y^6, x^8 + x^4y^4 + y^8$   
 (a)  $(x^3 + y^3)(x^2 + y^2)(x^2 - xy + y^2)$  (b)  $(x^3 - y^3)(x^2 + y^2)(x^2 + xy + y^2)$   
 (c)  $(x^6 - y^6)(x^4 + x^2y^2 + y^4)$  (d)  $(x^6 - y^6)(x^4 - x^2y^2 + y^4)$
59. If  $a + b = 2c$  then  $26c^3 - a^3 - b^3 = ?$   
 (a)  $3(a - b)(b - c)(c - a)$  (b)  $3(a + b)(b + c)(c + a)$   
 (c)  $3(a + bc)(b + ca)(c + ab)$  (d)  $3(a - bc)(b - ca)(c - ab)$
60. Resolve into factors :  $63x^3 + 6x^2 - 12x + 8$   
 (a)  $(3x - 2)(21x^2 - 12x - 4)$  (b)  $(3x + 2)(21x^2 - 12x + 4)$   
 (c)  $(3x - 2)(21x^2 + 12x + 4)$  (d)  $(3x + 2)(21x^2 + 12x - 4)$