

EINSTEIN'S ACADEMY

10TH STANDARD

ALGEBRA UNIT -3

CLASS: 10
SUB: MATHS

MARKS:50
TIME: 1.30 Hrs.
7 x 1 = 7

I. Choose the correct answer:

1. $\frac{3y-3}{y} \div \frac{7y-7}{3y^2}$ is
(A) $\frac{9y}{7}$ (B) $\frac{9y^3}{21y-21}$ (C) $\frac{21y^2-42y+21}{3y^2}$ (D) $\frac{7(y^2-2y+1)}{y^2}$
2. If $(x-6)$ is the HCF of $x^2-2x-24$ and x^2-kx-6 then the value of k is
(A) 3 (B) 5 (C) 6 (D) 8
3. If the roots of the equation $q^2x^2+p^2x+r^2=0$ are the squares of the roots of the equation $qx^2+px+r=0$, then q,p,r are in -----
(A) A.P. (B) G.P. (C) both A.P and G.P (D) None of these
4. The number of points of intersection of the quadratic polynomial x^2+4x+4 with the X axis is
(A) 0 (B) 1 (C) 0 (D) 2
5. The solution of the system $x+y-3z = -6$, $-7y+7z=7$, $3z=9$ is
(A) $x=1, y=2, z=3$ (B) $x=-1, y=2, z=3$ (C) $x=-1, y=-2, z=3$ (D) $x=1, y=-2, z=3$
6. The square root of $\frac{256x^8y^4z^{10}}{25x^6y^6z^7}$ is equal to
(A) $\frac{16}{5} \frac{x^2y^4}{y^2}$ (B) $16 \frac{y^2}{x^2z^4}$ (C) $\frac{16}{5} \frac{y}{xz^2}$ (D) $\frac{16}{5} \frac{xz^2}{y}$
7. Which of the following should be added to make x^2+64 a perfect square?
(A) $4x^2$ (B) $16x^2$ (C) $8x^2$ (D) $-8x^2$

II. Answer any FIVE questions:(Q.No.14 is compulsory)

5 x 2 = 10

8. Find the LCM of the given expression: $9a^3b^2, 12a^2b^2c$
9. Find the excluded values of the following expressions (if any): $\frac{x+10}{8x}$
10. Simplify: (i) $\frac{x+4}{3x+4y} \times \frac{9x^2-16y^2}{2x^2+3x-20}$
11. Find the square root of the following expression: $16x^2+9y^2-24xy+24x-18y+9$.
12. Solve: $2m^2+19m+30 = 0$.
13. Find the values of 'k' such that the quadratic equation $(k+9)x^2+(k+1)x+1 = 0$ has no real roots?
14. Find the zeroes of the quadratic expression $x^2+8x+12$.

III. Answer any FIVE questions: (Q.No. 21 is compulsory)

5 x 5 = 10

15. Find the values of a and b if the following polynomials are perfect square.
 $4x^4-12x^3+37x^2+bx+a$
16. Vani, her father and her grand father have an average age of 53. One-half of her grand father's age plus one-third of her father's age plus one fourth of Vani's age is 65. Four years ago if Vani's grand father was four times as old as Vani then how old are they all now?
17. Find the GCD of the polynomials $x^3 + x^2 - x + 2$ and $2x^3 - 5x^2 + 5x - 3$.
18. If one root of the equation $2y^2-ay+64 = 0$ is twice the other then find the value of 'a'.
19. A ladder $17n$ feet long is leaning against a wall. If the ladder, vertical wall and the floor from the bottom of the wall to the ladder form a right triangle, find the height of the wall where the top of the ladder meets if the distance between bottom of the wall to bottom of the ladder is 7

feet less than the height of the wall?

20. The hypotenuse of a right angled triangle is 25 cm and its perimeter 56 cm. Find the length of the smallest side.

IV. Answer all the question:

8 x 1 = 8

21. Draw the two tangents from a point which is 5cm away from the centre of a circle of diameter 6cm, Also, measure the lengths of the tangents.

(OR)

A garment shop announces a flat 50% discount on every purchase of items for their customers. Draw the graph for the relation between the Marked price and the Discount. Hence find (i) the market price when a customer gets a discount of Rs.3250. (ii) the discount when the marked price is Rs.2500.

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