

**Question 1**

Which number is same with  $\left(3\frac{3}{4} - \frac{5}{6}\right) \div \frac{5}{24}$

- (a) 14
- (b) 9.6
- (c) 10
- (d) 13
- (e) 11

**Question 2**

Perform the indicated operations  $3(2x - 5) - 4(5 - 3x)$

- (a)  $-6x-30$
- (b)  $9x-25$
- (c)  $3x-25$
- (d)  $18x-35$
- (e)  $-4x-25$

**Question 3**

Solve the equation  $\frac{2x-3}{5} - \frac{4x+5}{3} = 8$

- (a) -10
- (b) -11
- (c) -13
- (d)  $-\frac{104}{14}$
- (e) -9

**Question 4**

Calculate and simplify the solution  $\sqrt{9 \cdot \sqrt[5]{32}}$

- (a)  $3\sqrt{2}$
- (b) 6
- (c)  $\sqrt{2}$
- (d)  $6\sqrt{2}$
- (e)  $4\sqrt{2}$

**Question 5**

Solve the equation  $\frac{2}{3}k - k + \frac{3}{8} = \frac{1}{2}$

- (a) 1
- (b) -1
- (c)  $-\frac{3}{8}$
- (d)  $\frac{3}{8}$
- (e) 0

**Question 6**

Rationalize the denominator  $\frac{6}{2-\sqrt{6}}$

- (a)  $6 + 3\sqrt{6}$
- (b)  $6 - 3\sqrt{6}$
- (c)  $-6 - 3\sqrt{6}$
- (d)  $-6 + 3\sqrt{6}$
- (e)  $6 + 6\sqrt{3}$

**Question 7**

What is  $p$  in  $3p - 1 < 6p - 2(p - 1)$

- (a)  $p > -3$
- (b)  $p < -3$
- (c)  $p > 2$
- (d)  $p < 3$
- (e)  $p < -1$

**Question 8**

Simplify following expression  $3x(x^2 - 3x + 5y) - 2x^2(x - 8)$

- (a)  $x^3 - 25x^2 + 15xy$
- (b)  $x^3 - 7x^2 + 15xy$
- (c)  $-5x^3 + x^2 + 15xy$
- (d)  $x^3 + 7x^2 + 15xy$
- (e)  $-3x^3 - 7x^2 + 15xy$

**Question 9**

Factorize the given polynomial  $3m^3 + 12m^2 + 9m$

- (a)  $3m(m-3)(m-3)$
- (b)  $3m(m+3)(m+1)$
- (c)  $3m(m-1)(m-9)$
- (d)  $m(m+3)(m+3)$
- (e)  $3m(m+3)(m-3)$

**Question 10**

If  $A = \{1,3,5,7\}$  and  $B = \{-3, -1,0,3,7\}$  then find  $N(A \cup B) - N(A \cap B)$ .

( $N$  is the number of elements)

- (a) 5
- (b) 7
- (c) 1
- (d) 3
- (e) 2

**Question 11**

Solve the system of linear equations  $\begin{cases} x + 2y = 5 \\ -2x + 5y = -1 \end{cases}$

- (a) (-2;2)
- (b) (7;-1)
- (c) (-1;3)
- (d) (2;1)
- (e) (-1;-2)

**Question 12**

Simplify the expression  $\frac{7^{\frac{1}{3}} \cdot r^{-3} \cdot 7}{7^{\frac{2}{3}} (r^{-2})^2}$

- (a)  $3r$
- (b)  $r^2$
- (c)  $r^{-1}$
- (d)  $r$
- (e)  $2r$

**Question 13**

Simplify irrational expression  $\sqrt[3]{2} - \sqrt[3]{16} + 2 \cdot \sqrt[3]{54}$

- (a)  $5\sqrt[3]{2}$
- (b)  $\sqrt[3]{2}$
- (c) 0
- (d)  $-7\sqrt[3]{2}$
- (e) -1

**Question 14**

If  $-3 < -2x + 5 < 7$  then

- (a)  $4 > x > -1$
- (b)  $8 > x > -2$
- (c)  $-4 > x > 1$
- (d)  $8 > x > 12$
- (e)  $2 > x > 6$

**Question 15**

Find the real roots of the quadratic equation  $2x^2 - 9x + 10 = 0$

- (a) 5 and -2
- (b) 5 and -4
- (c) 2.5 and 2
- (d) 2 and 5
- (e) -2 and -5

**Question 16**

Simplify expression  $\left(\frac{a^2 \cdot b^{-3} \cdot a}{a^{-5} \cdot b^2 \cdot b^{-1}}\right)^{-3}$

(a)  $\frac{b^6}{a^{12}}$

(b)  $\frac{b^{12}}{a^{24}}$

(c)  $\frac{a^{12}}{b^{24}}$

(d)  $\frac{a^{24}}{b^{12}}$

(e)  $\frac{a^8}{b^{12}}$

**Question 17**

Solve the given inequality  $x^2 + 3x - 10 \leq 0$

(a) [1;10]

(b) [-2;5]

(c) [3;5]

(d) [-5;2]

(e) [2;4]

**Question 18**

Write rational expression in lowest terms  $\frac{6r-18}{r^2-8r+16} \div \frac{4r-12}{4r-16}$

(a)  $\frac{1}{r-4}$

(b)  $\frac{6}{r-4}$

(c) 6

(d)  $r - 4$

(e)  $\frac{2}{r-2}$

**Question 19,20 and 21 are related**

A line is joining coordinates (2; 1) and (-2; 5)

**Question 19**

Find slope of the line

- (a) -1
- (b) -3
- (c) 0
- (d) unidentified
- (e) -2

**Question 20**

Find the equation of line

- (a)  $y=3$
- (b)  $x=3$
- (c)  $y=-x+3$
- (d)  $y=3x-1$
- (e)  $y=3x+1$

**Question 21**

Find the coordinates where the line cuts the axes

- (a) (0;-1) and (1;0)
- (b) (-3;0) and (0; -2)
- (c) (0;0) and (2;-3)
- (d) (0;3) and (3;0)
- (e) (1;0) and (-3;-1)

**Question 22,23,24 and 25 are related**

The equation of curve  $y = x^2 - 6x + 8$  and the line  $y = x - 2$

**Question 22**

Find the coordinates of intersection of curve and line

- (a) (2;0) and (5;3)
- (b) (-3;0) and (2;0)
- (c) (5;3) and (-1;-3)
- (d) (3;1) and (0;8)
- (e) (-2;-3) and (1; 0)

**Question 23**

Find the turning point (coordinate) of the curve

- (a) (0;8)
- (b) (2;0)
- (c) (3;-1)
- (d) (2;8)
- (e) (-3;-2)

**Question 24**

Find the coordinates of curve where it cuts the y-axis

- (a) (2;0) and (0;8)
- (b) (3;0) and (0;4)
- (c) (2;0) and (4;0)
- (d) (-3;0) and (5;0)
- (e) (1; -3) and (-1;0)

**Question 25**

Find the coordinates of curve where it cuts the x-axis

- (a) (0;8)
- (b) (2;0)
- (c) (4;0)
- (d) (4;8)
- (e) (8;2)

**-End of Test -**

**Answers:**

1. A	6. C	11. D	16. B	21. D
2. D	7. A	12. D	17. D	22. A
3. B	8. D	13. A	18. B	23. C
4. A	9. B	14. A	19. A	24. C
5. C	10. A	15. C	20. C	25. A