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Q.1 Find Intersection of sets.  $A = \{a, b, c, d\}$  &  $B = \{d, e, f, g, h\}$

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- a)  $\emptyset$
  - b)  $\{a, b, c, d\}$
  - c)  $\{d, e, c, g, h\}$
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Q.2 Add, subtract, multiply and divide numbers and fractions :  $1. 2 + 3(9 - 4)^2$

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- a) 75
  - b) 25
  - c) 10
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2.  $\frac{21}{16} \div \frac{28}{8}$

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- a)  $\frac{6}{8}$
  - b)  $\frac{4}{3}$
  - c)  $\frac{3}{8}$
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Q.3 In a given school, there are 240 boys and 260 girls. What is the ratio of the number of girls to the number of boys?

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- a) 13 : 12
- b) 12 : 13
- c) 26 : 10

Q. 4 Mr. Waseem went downtown by bus and the journey was 2300 m. When he came back, he took a taxi and the journey was 2800 m. What was the total distance he travelled? Show the result in kilometer.

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- a) 100 km and 5m
  - b) 1km and 5m
  - c) 5km and 100m
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Q.5 The sum of two numbers is 16. The difference is 4. What are the two numbers?

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- a) 30 and 6
  - b) 20 and 30
  - c) 10 and 6
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Q.6 Solve the absolute value inequality.  $|2x - 3| > 3$

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- a)  $(-\infty, -2)$  or  $(5, \infty)$
  - b)  $(\infty, -20)$  or  $(50, \infty)$
  - c)  $(-\infty, 2)$  or  $(15, \infty)$
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Q.7 Find discriminant of  $x^2 + 3x + 2 = 0$

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- a) -50
- b) 40
- c) -30

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Q.8 At a restaurant, Talal and his three friends Bilal, Ahmed and Abdullah decided to divide the bill evenly. If each person's part exceeded \$13, what was the total bill?

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- a) 54
  - b) 53
  - c) 52
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Q.9 Factor each completely. 1.  $m^2 + 5m + 6$

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- a)  $(m + 2)(m - 3)$
  - b)  $(m - 2)(m - 3)$
  - c)  $(m + 2)(m + 3)$
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Q10. Solve the first-degree equation.  $4x - 7(2 - x) = 3x + 2$

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- a) 2
- b) 8
- c) 16



Q.11 Simplify with help of exponents and write the answer with help positive exponents.

$$\frac{\left(\frac{1}{3}\right)^2 \times \left(\frac{1}{3}\right)^{-4}}{\left(\frac{1}{3}\right)^{-2} \times \left(\frac{1}{3}\right)^{-5}}$$

- a)  $\frac{243}{3}$
- b)  $\frac{1}{243}$
- c)  $\frac{43}{3}$

Q. 12 Simplify rational expression and.  $\frac{x^2 + 2x - 8}{x^2 - 1} \times \frac{x+1}{x+4}$

- a)  $\frac{x+1}{x+4}$
- b)  $\frac{x-12}{x-1}$
- c)  $\frac{x-2}{x-1}$

Q13. Rationalize the denominator.  $\frac{1}{4-3\sqrt{7}}$

- a)  $\frac{1}{47}$
- b)  $\frac{-4-3\sqrt{7}}{47}$
- c)  $\frac{3\sqrt{7}}{47}$

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Q.14 Determine whether the lines are parallel, perpendicular or neither. One line passes through points (2, 11) and (-1, 2) another line passes through points (0, -4) and (-2, -10).

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- a) Neither
  - b) Parallel
  - c) Perpendicular
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Q.15 Which is the standard equation of circle.

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- a)  $(x - h)^2 + (y - k)^2$
  - b)  $(x + h)^2 + (y + k)^2$
  - c)  $(x - h)^2 - (y - k)^2$
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Q.16 Find the symmetry of  $y + x^2 + 20 = x^6 - x^{20} + y^5 + x^{12}$

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- a) Symmetry about y-axis
  - b) Symmetry about x-axis
  - c) Symmetry about origin
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Q.17. Convert  $\frac{\pi}{3}$  radians in degrees.

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- a)  $80^\circ$
- b)  $60^\circ$
- c)  $90^\circ$

Q18. 120 degrees in radians.

- a)  $\frac{2\pi}{3}$
- b)  $\frac{6\pi}{5}$
- c)  $\frac{\pi}{3}$

Q.19 Write the rule to find area of sector of circle.

- a)  $A = \frac{c}{\pi} \times \pi r^2$
- b)  $A = \frac{n}{360} \times \pi r^2$
- c)  $A = \frac{c}{\pi r^2} \times \pi$

Q.20 Write sine $\theta$  function of a right-angle triangle.

- a)  $\frac{\text{Opposite}}{\text{Hypotenuse}}$
- b)  $\frac{\text{Perpendicular}}{\text{Hypotenuse}}$
- c)  $\frac{\text{Perpendicular}}{\text{Opposite}}$

Q21. Find length of AC by Pythagorean Theorem.

- a) 10
- b) 15
- c) 13

