GFPM1 Basic Mathematics Question Bank

1. Which sets contain the number -5?

Correct answer: C. Integers, rational numbers, and real numbers

A. Natural numbers only

B. Integers only

C. Integers, rational numbers, and real numbers

D. Irrational numbers and real numbers

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2. Classify the following number: $\sqrt{36}$

Correct answer: A. Natural, integer, rational, and real

A. Natural, integer, rational, and real

B. Irrational and real

C. Rational only

D. Integer only

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3. Which of the following is an irrational number?

Correct answer: A. $\sqrt{11}$

A. $\sqrt{11}$

B. $\sqrt{16}$

C. $\frac{7}{8}$

D. 0.25

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4. Which relationship between the number sets is correct?

Correct answer: B. $\mathbb{N} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R}$

A. $\mathbb{R} \subset \mathbb{Q} \subset \mathbb{Z}$

B. $\mathbb{N} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R}$

C. $\mathbb{Z} \subset \mathbb{N} \subset \mathbb{R}$

D. $\mathbb{Q} \subset \mathbb{Z} \subset \mathbb{N}$

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5. The LCM of 3 and 5 is _____

Correct answer: D. 15

A. 10

B. 3

C. 5

D. 15

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6. Simplify the ratio: 15 : 25

Correct answer: B. 3 : 5

A. 2 : 3

B. 3 : 5

C. 5 : 3

D. 5 : 8

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7. Convert the decimal into a fraction: 0.45

Correct answer: B. $\frac{9}{20}$

A. $\frac{4}{5}$

B. $\frac{9}{20}$

C. $\frac{5}{9}$

D. $\frac{11}{20}$

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8. Find 28% of 250.

$$\frac{28}{100} \times 250$$

Correct answer: C. 70

A. 56

B. 65

C. 70

D. 75

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9. Convert 3.75 kilometres into metres.

$$\mathbf{3.75 \times 1000}$$

Correct answer: B. 3750 m

A. 375 m

B. 3750 m

C. 37500 m

D. 0.00375 m

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10. Convert 240 centimetres into metres.

$$240 \div 100$$

Correct answer: B. 2.4 m

A. 0.24 m

B. 2.4 m

C. 24 m

D. 2400 m

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11. Solve the equation:

$$7x - 5 = 30$$

Correct answer: B. $x = 5$

A. $x = 4$

B. $x = 5$

C. $x = 6$

D. $x = 7$

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12. Solve the equation:

$$4(x - 3) = 20$$

Correct answer: D. $x = 8$

A. $x = 5$

B. $x = 6$

C. $x = 7$

D. $x = 8$

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13. Solve the equation:

$$\frac{x}{5} + 2 = 6$$

Correct answer: C. $x = 20$

A. $x = 10$

B. $x = 15$

C. $x = 20$

D. $x = 25$

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14. Solve the radical equation:

$$\sqrt{x + 9} = 5$$

Correct answer: B. $x = 16$

A. $x = 14$

B. $x = 16$

C. $x = 25$

D. $x = 34$

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15. Solve the inequality:

$$3x - 4 \leq 11$$

Correct answer: A. $x \leq 5$

A. $x \leq 5$

B. $x \geq 5$

C. $x < 7$

D. $x \geq 7$

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16. Find the roots of the quadratic equation:

$$x^2 - 7x + 10 = 0$$

Correct answer: B. $x = 2$ **and** $x = 5$

A. $x = 1$ and $x = 10$

B. $x = 2$ and $x = 5$

C. $x = -2$ and $x = -5$

D. $x = 3$ and $x = 4$

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17. Simplify:

$$(2x^2 + 3x - 4) + (x^2 - 5x + 6)$$

Correct answer: A. $3x^2 - 2x + 2$

A. $3x^2 - 2x + 2$

B. $3x^2 + 8x + 2$

C. $x^2 - 2x + 10$

D. $3x^2 - 8x - 10$

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18. Simplify using the laws of exponents:

$$x^3 \cdot x^5$$

Correct answer: B. x^8

A. x^{15}

B. x^8

C. $2x^8$

D. x^2

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19. Rationalize the denominator and simplify:

$$\frac{6}{\sqrt{3}}$$

Correct answer: A. $2\sqrt{3}$

A. $2\sqrt{3}$

B. $3\sqrt{2}$

C. $6\sqrt{3}$

D. $\frac{\sqrt{3}}{2}$

---

20. Evaluate:

$$\sin 30^\circ$$

Correct answer: B. $\frac{1}{2}$

A. 0

B. $\frac{1}{2}$

C. $\frac{\sqrt{2}}{2}$

D. 1

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21. Solve the proportion:

$$\frac{3}{5} = \frac{x}{45}$$

Correct answer: C. $x = 27$

A. $x = 15$

B. $x = 25$

C. $x = 27$

D. $x = 30$

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22. A product costs 150 OMR and is discounted by 18%. Find the new price.

$$150 - \left(\frac{18}{100} \times 150\right)$$

Correct answer: C. 123 **OMR**

A. 117 OMR

B. 120 OMR

C. 123 OMR

D. 132 OMR

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23. Convert 90 km/h into metres per second.

$$90 \times \frac{1000}{3600}$$

Correct answer: B. 25 m/s

A. 20 m/s

B. 25 m/s

C. 30 m/s

D. 32 m/s

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24. Solve the rational equation:

$$\frac{2}{x-1} = \frac{1}{3}$$

Correct answer: C. $x = 7$

A. $x = 5$

B. $x = 6$

C. $x = 7$

D. $x = 8$

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25. Solve:

$$\frac{x+2}{3} = \frac{x-1}{2}$$

Correct answer: C. $x = 7$

A. $x = 5$

B. $x = 6$

C. $x = 7$

D. $x = 8$

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26. Solve the radical equation:

$$\sqrt{3x+1} = 7$$

Correct answer: C. $x = 16$

A. $x = 12$

B. $x = 14$

C. $x = 16$

D. $x = 18$

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27. Solve the absolute-value equation:

$$|x - 4| = 9$$

Correct answer: C. $x = 13$ **or** $x = -5$

A. $x = 13$ only

B. $x = -5$ only

C. $x = 13$ or $x = -5$

D. $x = 9$ or $x = -9$

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28. Solve the inequality:

$$-3x + 7 > 19$$

Correct answer: B. $x < -4$

A. $x > -4$

B. $x < -4$

C. $x > 4$

D. $x < 4$

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29. Solve the compound inequality:

$$2 \leq \frac{x+1}{3} < 5$$

Correct answer: A. $5 \leq x < 14$

A. $5 \leq x < 14$

B. $5 < x \leq 14$

C. $6 \leq x < 15$

D. $3 \leq x < 12$

30. Use the quadratic formula to solve:

$$3x^2 - 5x - 2 = 0$$

Correct answer: A. $x = 2$ **or** $x = -\frac{1}{3}$

A. $x = 2$ or $x = -\frac{1}{3}$

B. $x = -2$ or $x = \frac{1}{3}$

C. $x = 1$ or $x = -2$

D. $x = 2$ or $x = \frac{1}{3}$

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31. Use the quadratic formula to solve:

$$x^2 + 6x + 2 = 0$$

Correct answer: A. $x = -3 \pm \sqrt{7}$

A. $x = -3 \pm \sqrt{7}$

B. $x = 3 \pm \sqrt{7}$

C. $x = -6 \pm \sqrt{2}$

D. $x = -3 \pm 7$

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32. The length of a rectangle is 4 metres greater than its width. Its area is 96 m². Find its dimensions.

$$w(w + 4) = 96$$

Correct answer: B. Width 8 m, length 12 m

A. Width 6 m, length 16 m

B. Width 8 m, length 12 m

C. Width 10 m, length 14 m

D. Width 12 m, length 16 m

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33. Three consecutive integers have a sum of 51. Find the integers.

$$x + (x + 1) + (x + 2) = 51$$

Correct answer: B. 16,17,18

A. 15,16,17

B. 16,17,18

C. 17,18,19

D. 18,19,20

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34. Expand:

$$(2x - 3)(x + 5)$$

Correct answer: A. $2x^2 + 7x - 15$

A. $2x^2 + 7x - 15$

B. $2x^2 + 13x - 15$

C. $2x^2 - 7x + 15$

D. $2x^2 + 10x - 3$

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35. Factor completely:

$$6x^2 + 7x - 3$$

Correct answer: A. $(3x - 1)(2x + 3)$

A. $(3x - 1)(2x + 3)$

B. $(3x + 1)(2x - 3)$

C. $(6x - 1)(x + 3)$

D. $(2x - 1)(3x + 3)$

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36. Simplify:

$$\frac{x^3 - 27}{x - 3}$$

Correct answer: B. $x^2 + 3x + 9$

A. $x^2 - 3x + 9$

B. $x^2 + 3x + 9$

C. $x^2 + 9$

D. $x^2 - 9$

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37. Solve:

$$6(2x - 1) - 4(x + 3) = 10$$

Correct answer: C. $x = \frac{7}{2}$

A. $x = \frac{5}{2}$

B. $x = 3$

C. $x = \frac{7}{2}$

D. $x = 4$

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38. Simplify using the laws of exponents:

$$\frac{(2a^3b^{-2})^2}{4ab^{-1}}$$

Correct answer: A. $\frac{a^5}{b^3}$

A. $\frac{a^5}{b^3}$

B. $\frac{a^6}{b^2}$

C. a^5b^3

D. $\frac{a^2}{b^5}$

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39. Simplify the rational expression:

$$\frac{x^2 - 16}{x^2 + x - 20}$$

Correct answer: B. $\frac{x+4}{x+5}$

A. $\frac{x-4}{x+5}$

B. $\frac{x+4}{x+5}$

C. $\frac{x+4}{x-4}$

D. $\frac{x-4}{x-5}$

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40. Rationalize the denominator:

$$\frac{5}{\sqrt{2} + 1}$$

Correct answer: B. $5\sqrt{2} - 5$

A. $5\sqrt{2} + 5$

B. $5\sqrt{2} - 5$

C. $\frac{5\sqrt{2}-5}{2}$

D. $\frac{5\sqrt{2}+5}{2}$

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41. Find the equation of the line parallel to $2x - 3y = 6$ and passing through the point $(3, -1)$.

Correct answer: B. $2x - 3y = 9$

A. $2x - 3y = 6$

B. $2x - 3y = 9$

C. $3x - 2y = 9$

D. $2x + 3y = 3$

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42. Find the equation of the line perpendicular to $y = 4x - 7$ and passing through the point $(-2, 3)$.

Correct answer: A. $x + 4y = 10$

A. $x + 4y = 10$

B. $4x + y = -5$

C. $x - 4y = -14$

D. $4x - y = -11$

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43. Find the equation of a circle with centre $(-3, 2)$ and radius 5.

Correct answer: B. $(x + 3)^2 + (y - 2)^2 = 25$

A. $(x - 3)^2 + (y + 2)^2 = 25$

B. $(x + 3)^2 + (y - 2)^2 = 25$

C. $(x + 3)^2 + (y - 2)^2 = 5$

D. $(x - 3)^2 + (y - 2)^2 = 25$

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44. Find the equation of the circle when center of circle at the point $(0, 0)$ and radius is 5:

Correct answer: A. $x^2 + y^2 = 25$

A. $x^2 + y^2 = 5$

B. $x^2 + y^2 = 25$

C. $x^2 + y^2 = 15$

D. $x^2 + y^2 = 30$

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45. The graph of the following equation is symmetric about which axes or point?

$$x^2 + y^2 = 9$$

Correct answer: D. The x-axis, y-axis, and origin

A. The x-axis only

B. The y-axis only

C. The origin only

D. The x-axis, y-axis, and origin

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46. Convert the angle into radians:

$$240^\circ$$

Correct answer: C. $\frac{4\pi}{3}$

A. $\frac{2\pi}{3}$

B. $\frac{3\pi}{4}$

C. $\frac{4\pi}{3}$

D. $\frac{5\pi}{3}$

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47. Find the length of an arc with radius 9 cm and central angle 140°.

$$s = \frac{\theta}{360^\circ} \times 2\pi r$$

Correct answer: C. 7π **cm**

A. 5π cm

B. 6π cm

C. 7π cm

D. 9π cm

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48. Find the area of a sector with radius 12 cm and central angle 75°.

$$A = \frac{\theta}{360^\circ} \times \pi r^2$$

Correct answer: B. 30π **cm²**

A. 24π cm²

B. 30π cm²

C. 36π cm²

D. 45π cm²

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49. Simplify using a fundamental trigonometric identity:

$$\frac{1-\cos^2\theta}{\sin\theta\cos\theta}$$

Correct answer: C. $\tan\theta$

A. $\sin\theta$

B. $\cos\theta$

C. $\tan\theta$

D. $\cot\theta$

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50. From the top of a 60-metre tower, the angle of depression to a car is 25°. Find the horizontal distance d from the car to the base of the tower.

$$\tan 25^\circ = \frac{60}{d}$$

Correct answer: C. 128.7 m

A. 95.4 m

B. 110.7 m

C. 128.7 m

D. 145.2 m
