
**MAT 0024
PRACTICE EXIT EXAM
SOLUTIONS**

1. Simplify:

$$8 - 4 \div 2 - 10 \div 2 = 8 - 2 - 5 = 1$$

Answer: B

2. Simplify:

$$12 - (-3)^2 \div (7 - 4) = 12 - (9) \div (3) = 12 - 3 = 9$$

Answer: C

3. Simplify:

$$|-8| - |-5| = (8) - (5) = 3$$

Answer: C

4. Simplify:

$$-2[x + 9(x + 1)] = -2[x + 9x + 9] = -2[10x + 9] = -20x - 18$$

Answer: D

5. Evaluate the given expression when $w = -2$:

If $w = -2$, then

$$3w^2 + 5w - 8 = 3(-2)^2 + 5(-2) - 8 = 3(4) + (-10) - 8 = 12 - 10 - 8 = -6$$

Answer: B

6. Solve for x:

$$2(3x + 5) = 5x - 11$$

$$6x + 10 = 5x - 11$$

$$x = -21$$

Answer: A

7. Solve for x:

$$\begin{aligned}\frac{1}{2}x + 6 &= 3 + 2x \\ x + 12 &= 6 + 4x \\ -3x &= -6 \\ x &= 2\end{aligned}$$

Answer: B

8. Solve for x:

$$\begin{aligned}5w + 4x &= 7k \\ 4x &= 7k - 5w \\ x &= \frac{7k - 5w}{4}\end{aligned}$$

Answer: C

9. Solve:

$$\begin{aligned}2x + 1 &< 3x + 4 \\ -x &< 3 \\ x &> -3\end{aligned}$$

Answer: D

10. If 4 times a number is increased by 7, the result is 15 less than the square of the number. Choose the equation that could be used to find this number, x.

The expression “4 times a number “ may be represented as $4x$.

The expression “4 times a number increased by 7” may be represented as $4x + 7$.

The expression “the square of the number” may be represented as x^2 .

The expression “15 less than the square of the number” may be represented as $x^2 - 15$.

Therefore, the equation is: $4x + 7 = x^2 - 15$.

Answer: C

11. The length of a rectangle is 2 feet more than the width. The perimeter of the rectangle is 20 feet. Find the length.

Let x represent the width. The length is represented by $x + 2$.

The perimeter of a rectangle is given by $2l + 2w$. The perimeter of this rectangle is given by $2(x + 2) + 2(x) = 2x + 4 + 2x = 4x + 4$.

$$4x + 4 = 20$$

The equation becomes: $4x = 16$

$$x = 4$$

The length is represented by $x + 2$. If $x = 4$, then $x + 2 = 6$.

Answer: B

12. Identify the proportion listed below that solves this problem.
A car can travel 189 miles on 9 gallons of gasoline. How far can the car travel on 13 gallons?

Use: $\frac{189 \text{ miles}}{9 \text{ gallons}} = \frac{x \text{ miles}}{13 \text{ gallons}}$

Answer: B

13. Simplify:

$$(a^2b^3)^2$$

Answer: C

14. Simplify:

$$\frac{x^{-3}y^6}{x^{-4}y^4} = \frac{x^4y^6}{x^3y^4} = xy^2$$

Answer: A

15. Simplify:

$$(a^2b^0c^{-1})^3 = a^6b^0c^{-3} = a^6(1)(c^{-3}) = \frac{a^6}{c^3}$$

Answer: D

16. Convert to standard form:

$$7.96 \times 10^{-2}$$

Move the decimal two places to the left.

Answer: B

17. Simplify:

$$(3x^2 + 2x - 6) - (x^2 - x + 2) = 3x^2 + 2x - 6 - x^2 + x - 2 = 2x^2 + 3x - 8$$

Answer: D

18. Simplify:

$$4x^3(2x^2 - 7) = 8x^5 - 28x^3$$

Answer: A

19. Simplify:

$$(5x - 9)(x + 6) = 5x^2 + 30x - 9x - 54 = 5x^2 + 21x - 54$$

Answer: D

20. Factor completely:

$$12a^2b^2 - 3ab = 3ab(4ab - 1)$$

Answer: B

21. Factor completely:

$$4x^2 - 9 = (2x + 3)(2x - 3)$$

Answer: B

22. Factor completely:

$$ax - a + bx - b = a(x - 1) + b(x - 1) = (x - 1)(a + b)$$

Answer: C

23. Identify a factor of the trinomial below:

$$5x^2 - 9x - 2 = (5x + 1)(x - 2)$$

Answer: B

24. Simplify:

$$\frac{x^2 - 4x + 3}{1 - x} = \frac{(x - 1)(x - 3)}{-1(x - 1)} = -1(x - 3) = -x + 3$$

Answer: A

25. Solve:

$$\begin{aligned}x^2 - 5x + 6 &= 0 \\(x - 2)(x - 3) &= 0 \\x - 2 = 0 \quad \text{or} \quad x - 3 &= 0 \\x = 2 \quad \text{or} \quad x &= 3\end{aligned}$$

Answer: A

26. Solve:

$$\begin{aligned}3a^2 + 14a + 8 &= 0 \\(3a + 2)(a + 4) &= 0 \\3a + 2 = 0 \quad \text{or} \quad a + 4 &= 0 \\3a = -2 \quad \text{or} \quad a &= -4 \\a = \frac{-2}{3} \quad \text{or} \quad a &= -4\end{aligned}$$

Answer: A

27. Assuming the variable represents a non-negative number, simplify completely:

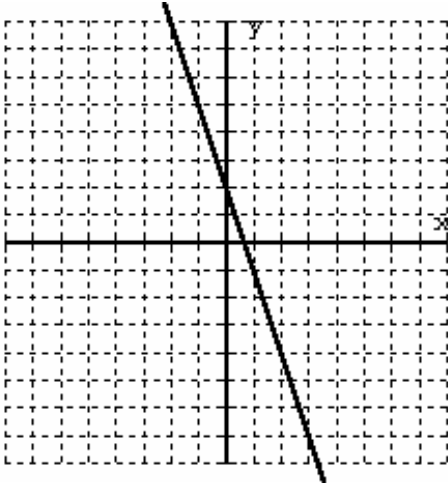
$$\sqrt{18x^3} = \sqrt{9x^2} \sqrt{2x} = 3x\sqrt{2x}$$

Answer: A

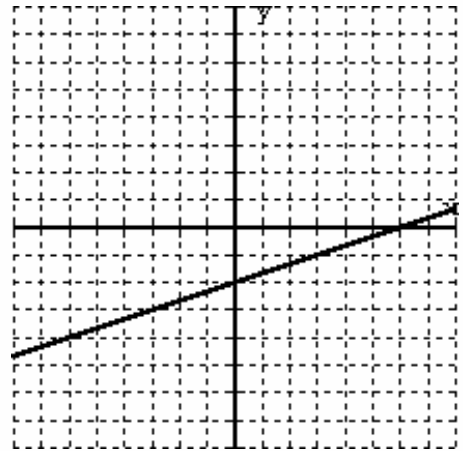
28. Find the graph that best matches the given linear equation:

$$y = 3x + 2$$

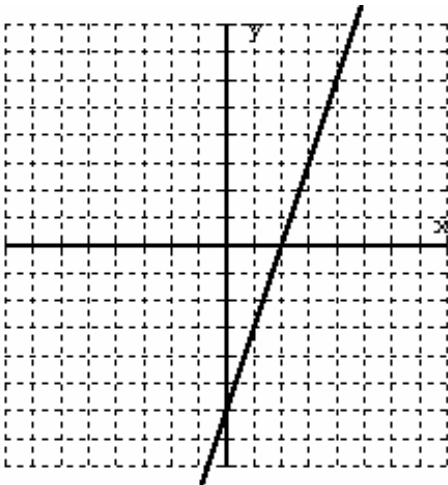
A.



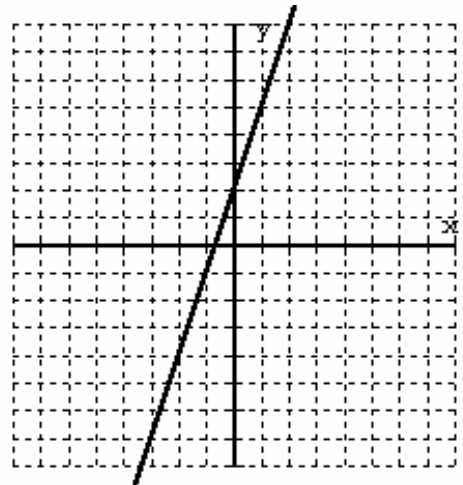
C.



B.



D.



The y-intercept is 2 and the x-intercept is $\frac{-2}{3}$

Answer: D

29. Simplify:

$$\sqrt{3}(\sqrt{3} + \sqrt{6}) = \sqrt{9} + \sqrt{18} = 3 + \sqrt{9}\sqrt{2} = 3 + 3\sqrt{2}$$

Answer: C

30. Find the x-intercept for:

$$2x - 3y = 6$$

$$\text{Set } y = 0$$

$$2x - 3(0) = 6$$

$$2x - 0 = 6$$

$$2x = 6$$

$$x = 3$$

Answer: C (3, 0)