MTH 05 Sample Final Exam, Version 7

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1. Simplify.

$$2\sqrt{3} - 5\sqrt{27}$$

- **A.** $-13\sqrt{3}$
- **B.** $-43\sqrt{3}$
- **C.** $13\sqrt{3}$
- **D.** $6 - 15\sqrt{3}$

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2. Simplify completely.

$$\sqrt{5}(\sqrt{65} + 5\sqrt{5})$$

- **A.** $25\sqrt{13}$
- **B.** $13\sqrt{5} + 25$
- **C.** $5\sqrt{13} + 5\sqrt{5}$
- **D.** $5\sqrt{13} + 25$

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3. Simplify completely.

$$\frac{\sqrt{6}\sqrt{84}}{\sqrt{2}}$$

- **A.** $36\sqrt{7}$
- **B.** $6\sqrt{7}$
- **C.** $7\sqrt{6}$
- **D.** $6\sqrt{42}$

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4. Simplify.

$$(-13x^8y^{-5})(6x^7y^{15})$$

- **A.** $\dfrac{-78x}{y^{20}}$
- **B.** $-7x^{15}y^{10}$
- **C.** $\dfrac{-78x^{56}}{y^{75}}$
- **D.** $-78x^{15}y^{10}$

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5. Simplify.

$$12x^{-1}\,x^{-2}\,y^4\,x^{-6}$$

- **A.** $\dfrac{-12y^4}{x^9}$
- **B.** $\dfrac{12}{x^5}$
- **C.** $12x^9y^4$
- **D.** $\dfrac{12y^4}{x^9}$

6. Simplify Completely.

$$(17x^2 - 10x + 18) - (-8x^2 - 5x + 4)$$

- **A.** $25x^2 + 15x + 14$
- **B.** $25x^2 - 5x + 22$
- **C.** $25x^2 - 5x + 14$
- **D.** $9x^2 - 5x + 14$

7. Multiply.

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

- **A.** $5x^3 + 16x^2 - 2x - 12$
- **B.** $5x^3 + 4x^2 + 10x - 12$
- **C.** $5x^3 + 4x^2 - 2x - 12$
- **D.** $5x^3 + 16x^2 + 10x - 12$

8. Simplify completely.

$$\frac{6x^9 - 12x^6 - 9x^2}{-3x^2}$$

- **A.** $-2x^7 + 4x^4$
- **B.** $-2x^7 - 4x^4 - 3$
- **C.** $-2x^7 + 4x^4 + 3$
- **D.** $6x^9 - 12x^6$

9. Factor completely.

$$18x^2y - 32y^3$$

- **A.** $2y(3x - 4y)(3x + 4y)$
- **B.** $2\left(9x^2y - 16y^3\right)$
- **C.** $2y(3x - 4y)^2$
- **D.** $2y\left(9x^2 - 16y^2\right)$

10. Which of the following is a factor of the polynomial?

$$3x^2 - 20x + 12$$

- **A.** $x - 6$
- **B.** $3x + 2$
- **C.** $x + 6$
- **D.** $3x - 6$

11. Which of the following is a factor of the polynomial?

$$12ac + 3ad + 28bc + 7bd$$

- **A.** $4c - d$
- **B.** $3a + 7b$
- **C.** $3c + 7d$
- **D.** $3a - 7b$

12. If x represents a number, which equation is a correct translation of the sentence?

23 **less than** 6 **times a number is** 56**.**

- **A.** $6x - 23 = 56$
- **B.** $6(23 - x) = 56$
- **C.** $23 - 6x = 56$
- **D.** $6(x - 23) = 56$

13. Solve for x.

$$\frac{5x}{6} - \frac{5}{2} = -\frac{10}{3}$$

- **A.** $x = -5$
- **B.** $x = 4$
- **C.** $x = -2$
- **D.** $x = -1$

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14. Solve for x.

$$3x + 15 = -2(-4x - 5)$$

- **A.** $x = 2$
- **B.** $x = 0$
- **C.** $x = -1$
- **D.** $x = 1$

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15. What is the value of the x-coordinate of the solution to the system of equations.

$$\begin{aligned} -2x + 2y &= 0 \\ -2x + 5y &= 3 \end{aligned}$$

- **A.** $x = 3$
- **B.** $x = 1$
- **C.** $x = 5$
- **D.** $x = -1$

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16. Solve for x.

$$z = 4x + 4y$$

- **A.** $x = \frac{z}{4} - 4y$
- **B.** $x = 4(z - 4y)$
- **C.** $x = \frac{z + 4y}{4}$
- **D.** $x = \frac{z - 4y}{4}$

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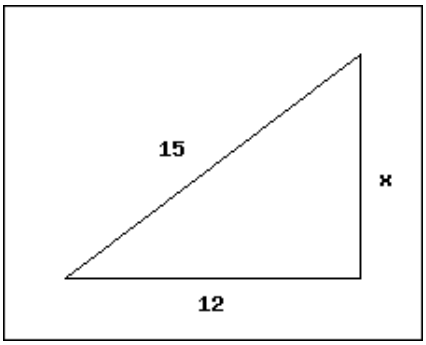
17. Find all solutions to the equation.

$$x^2 + 6x = -9$$

- **A.** $x = -4$ *or* $x = -2$
- **B.** *Only* $x = -3$
- **C.** *Only* $x = -4$
- **D.** $x = -5$ *or* $x = -3$

18. What is the value of x in the right triangle?

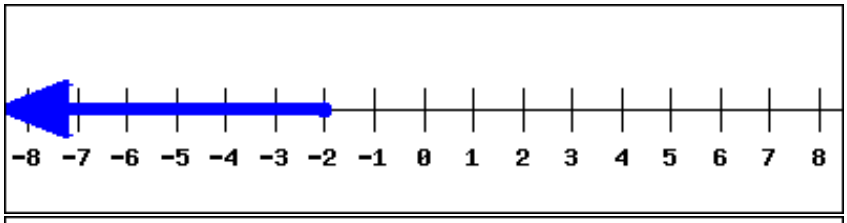


- **A.** 9
- **B.** $\sqrt{9}$
- **C.** $\sqrt{3}$
- **D.** 3

19. Find the graph of the solution to the inequality.

$$-4x+4 \geq 8x+28$$

A



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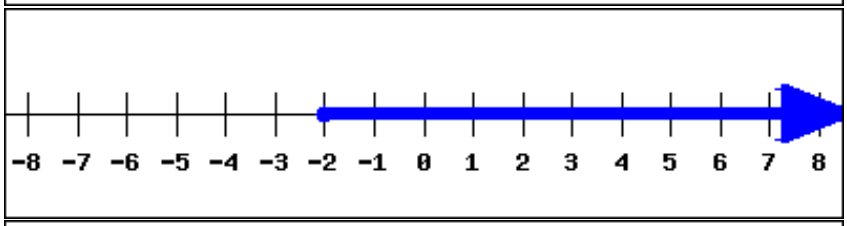

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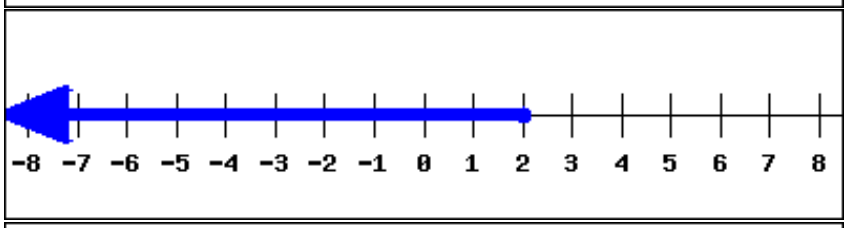

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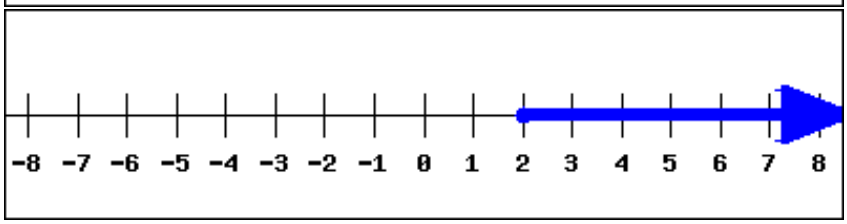


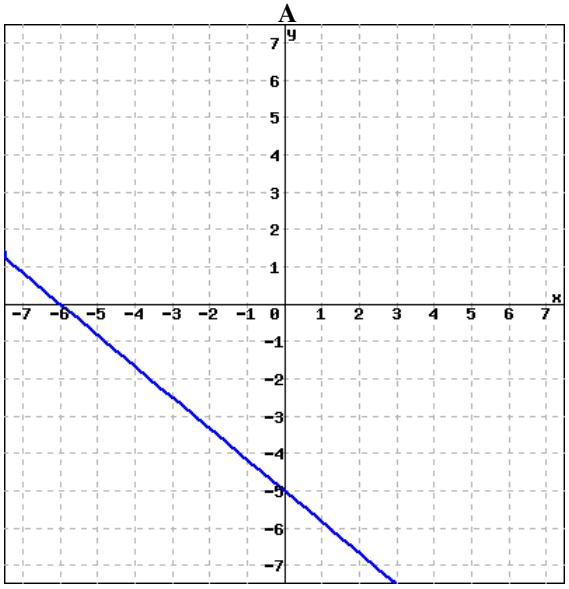
20. Given $a = -10$ and $b = -4$, evaluate the expression given below.

$$a^2 + b^2 a + ba$$

- **A.** -20
- **B.** 20
- **C.** -220
- **D.** 300

21. Which of the following is the graph of the equation $10x - 12y = -60$?

A



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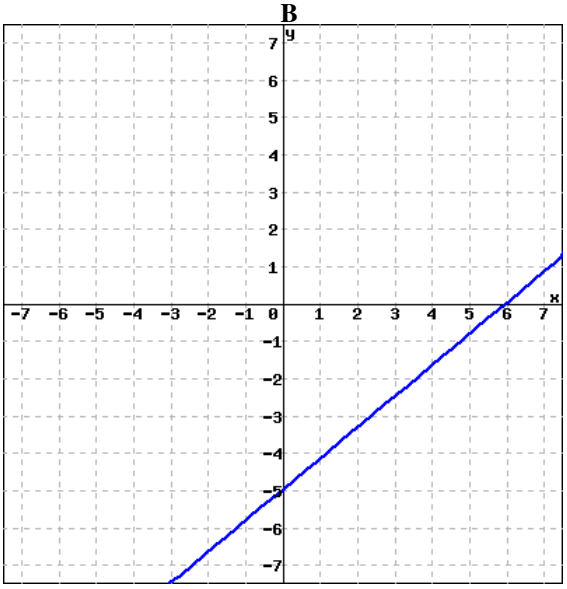

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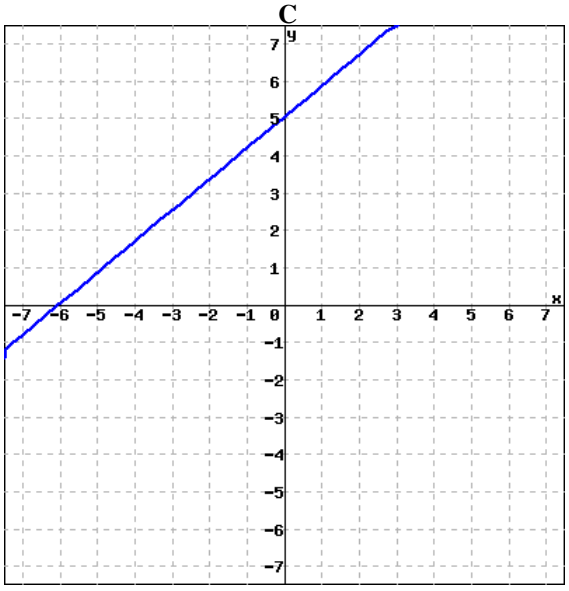

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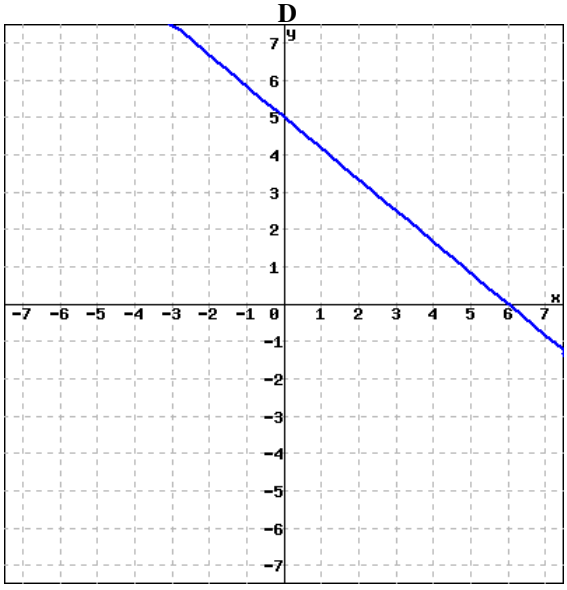


22. Find the equation of the line passing through the points $(-3,5)$ and $(4,-16)$. Write the equation in slope-intercept form.

- **A.** $y = -3x - 4$
- **B.** $y = 3x + 14$
- **C.** $y = -3x + 5$
- **D.** $y = 3x - 28$

23. Find the equation of the horizontal line passing through the point $(-4,14)$.

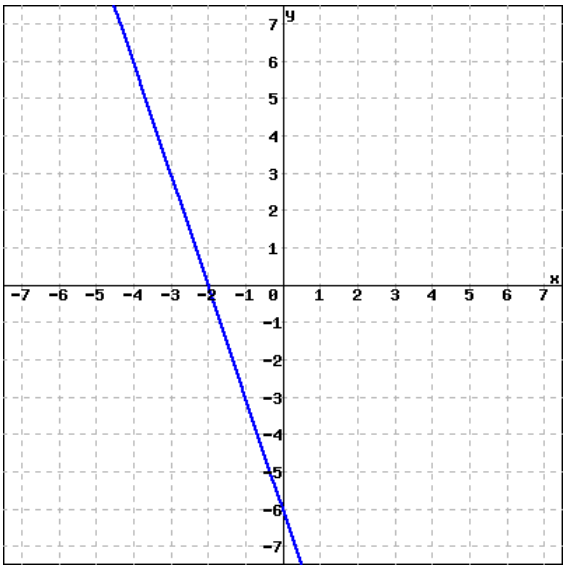
- **A.** $y = -\frac{7}{2}x + 14$
- **B.** $x = -4$
- **C.** $y = 14$
- **D.** $y = x + 14$

24. Find the slope and y-intercept for the graph of the equation.

$$-4x - 11y = -33$$

- **A. Slope** $= \dfrac{11}{4}$ **and** y**-intercept** $= (0,-33)$
- **B. Slope** $= -\dfrac{4}{11}$ **and** y**-intercept** $= (0,3)$
- **C. Slope** $= -\dfrac{11}{4}$ **and** y**-intercept** $= (0,-33)$
- **D. Slope** $= \dfrac{4}{11}$ **and** y**-intercept** $= (0,3)$

25. What is the slope of the line graphed below?



- **A.** $-\frac{1}{3}$
- **B.** 3
- **C.** $\frac{1}{3}$
- **D.** -3

Answers.

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