MTH 05 Sample Final Exam, Version 10

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

$$5ac - 35ad - 2bc + 14bd$$

- **A.** $5a + 2b$
- **B.** $5c - 2d$
- **C.** $c + 7d$
- **D.** $5a - 2b$

2. Simplify completely.

$$\frac{6x^{15} - 12x^8 - 15x^5}{-3x^5}$$

- **A.** $6x^{15} - 12x^8$
- **B.** $-2x^{10} + 4x^3 + 5$
- **C.** $-2x^{10} + 4x^3$
- **D.** $-2x^{10} - 4x^3 - 5$

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

$$\begin{aligned} 3x + 4y &= 20 \\ 2x - y &= -5 \end{aligned}$$

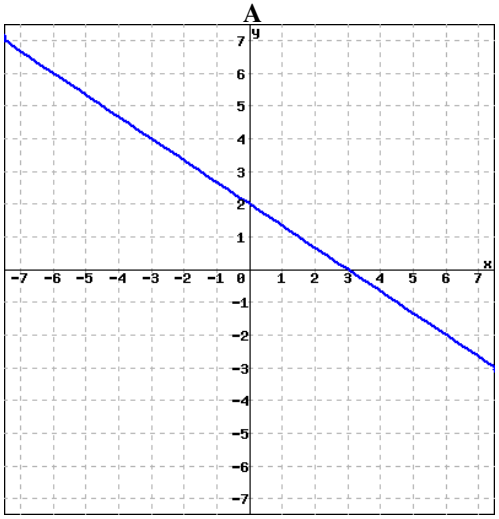
- **A.** $x = 0$
- **B.** $x = -1$
- **C.** $x = 1$
- **D.** $x = 2$

4. Find the equation of the line passing through the points $(-7, -11)$ and $(4, 11)$. Write the equation in slope-intercept form.

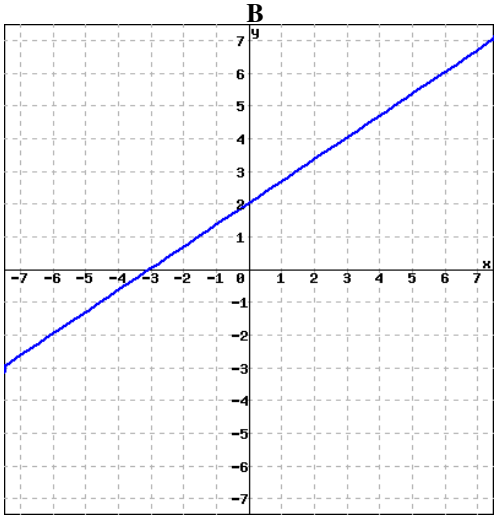
- **A.** $y = -2x - 25$
- **B.** $y = 2x - 11$
- **C.** $y = -2x + 19$
- **D.** $y = 2x + 3$

5. Which of the following is the graph of the equation $-4x+6y=-12$?

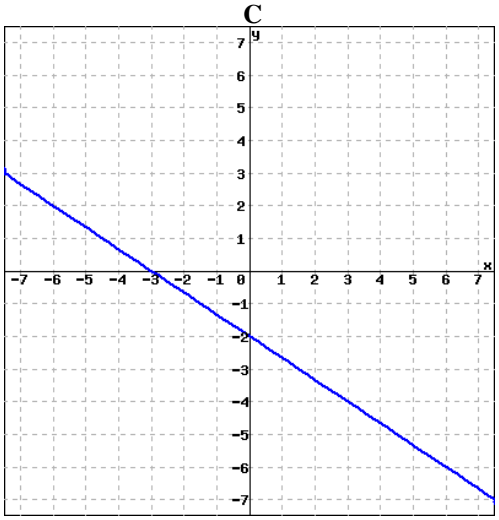
A



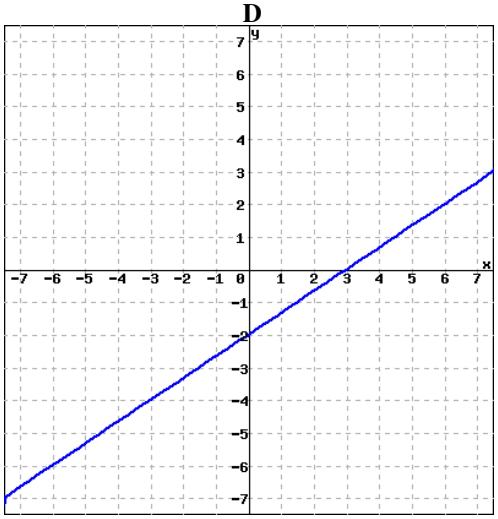
B



C



D



6. If l represents a number, which equation is a correct translation of the sentence?

48 **less than** 3 **times a number is** 5**.**

- **A.** $3(48-l)=5$
- **B.** $3(l-48)=5$
- **C.** $3l-48=5$
- **D.** $48-3l=5$

7. Find the equation of the vertical line passing through the point $(3,-5)$.

- **A.** $y=-\frac{5}{3}x-5$
- **B.** $x=3$
- **C.** $y=-5$
- **D.** $y=x-5$

8. Factor completely.

$$16x^3 - 100xy^2$$

- **A.** $4x(2x-5y)^2$
- **B.** $4x\left(4x^2-25y^2\right)$
- **C.** $4x(2x-5y)(2x+5y)$
- **D.** $4\left(4x^3-25xy^2\right)$

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

$$3x^2+22x+24$$

- **A.** $x+6$
- **B.** $x-6$
- **C.** $3x-4$
- **D.** $3x+6$

10. Multiply.

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

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

11. Solve for y.

$$z = 5x+9y$$

- **A.** $y = \dfrac{z\ +\ 5x}{9}$
- **B.** $y = \dfrac{z\ -\ 5x}{9}$
- **C.** $y = \dfrac{z}{9}\ -\ 5x$
- **D.** $y = 9(z\ -\ 5x)$

12. Simplify Completely.

$$(16x^2-15x+11)-(-4x^2-2x+4)$$

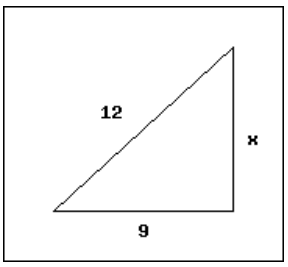
- **A.** $12x^2-13x+7$
- **B.** $20x^2-13x+15$
- **C.** $20x^2-13x+7$
- **D.** $20x^2+17x+7$

13. Simplify.

$$(-2\,x^8\,y^3\,z^{-4}\,)^4$$

- **A.** $\dfrac{16x^{32}y^{12}}{z^{16}}$
- **B.** $-\dfrac{8x^{32}y^{12}}{z^{16}}$
- **C.** $16x^{12}y^7$
- **D.** $-\dfrac{8x^8y^3}{z^4}$

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



- **A.** $\sqrt{3}$
- **B.** $3\sqrt{7}$
- **C.** 3
- **D.** $7\sqrt{3}$

---

15. Solve for x.

$$\frac{1}{2} = \frac{2x}{15} + \frac{3}{10}$$

- **A.** $x = -\frac{5}{2}$
- **B.** $x = -\frac{1}{2}$
- **C.** $x = \frac{1}{2}$
- **D.** $x = \frac{3}{2}$

---

16. Simplify completely.

$$\sqrt{2}(\sqrt{10} - 5\sqrt{2})$$

- **A.** $2\sqrt{5} - 5\sqrt{2}$
- **B.** $4\sqrt{5}$
- **C.** $5\sqrt{2} - 10$
- **D.** $2\sqrt{5} - 10$

---

17. Simplify.

$$(-8x^9y^6)(-7x^5y^8)$$

- **A.** $\dfrac{56x^4}{y^2}$
- **B.** $56x^{45}y^{48}$
- **C.** $56x^{14}y^{14}$
- **D.** $-15x^{14}y^{14}$

18. Find all solutions to the equation.

$$x^2 - 4x = -3$$

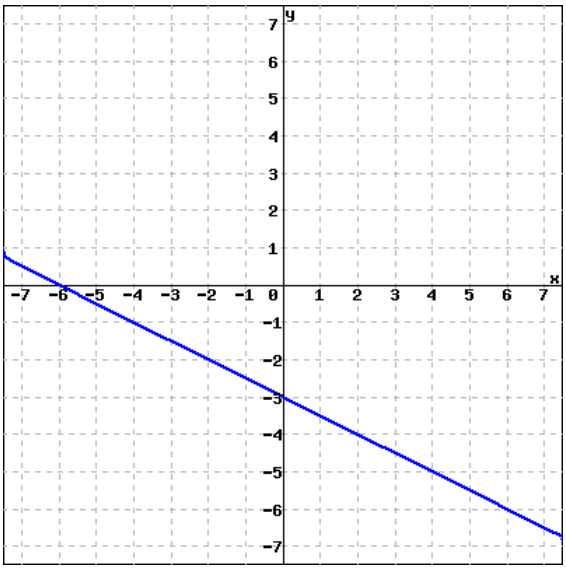
- **A.** $x = 1$ *or* $x = 3$
- **B.** *Only* $x = 4$
- **C.** *Only* $x = 1$
- **D.** $x = 2$ *or* $x = 4$

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

$$7x - 8y = -40$$

- **A. Slope** $= \frac{8}{7}$ **and** y**-intercept** $= (0, -40)$
- **B. Slope** $= -\frac{7}{8}$ **and** y**-intercept** $= (0, 5)$
- **C. Slope** $= -\frac{8}{7}$ **and** y**-intercept** $= (0, -40)$
- **D. Slope** $= \frac{7}{8}$ **and** y**-intercept** $= (0, 5)$

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



- **A.** $-\frac{1}{2}$
- **B.** $\frac{1}{2}$
- **C.** -2
- **D.** 2

21. Given $a = 2$ and $b = -5$, evaluate the expression given below.

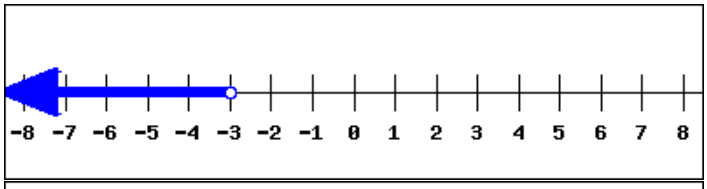
$$ab + b^2a + a^2$$

- **A.** -44
- **B.** 56
- **C.** -36
- **D.** 44

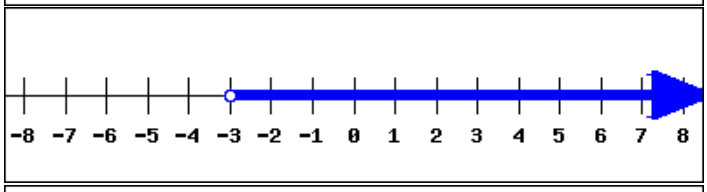
22. Find the graph of the solution to the inequality.

$$-4x-1<4x-25$$

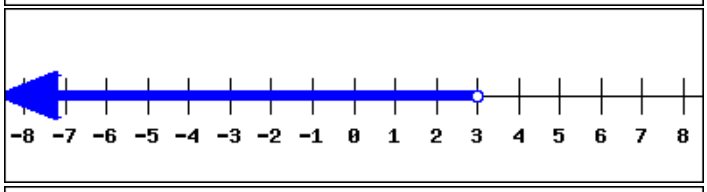
A



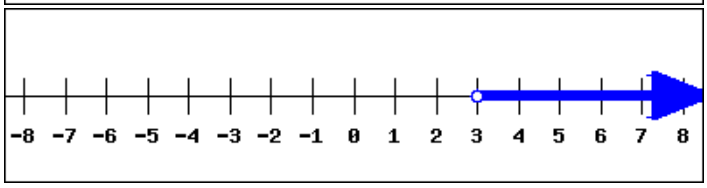
B



C



D



23. Simplify.

$$3\sqrt{150}+2\sqrt{24}$$

- **A.** $19\sqrt{6}$
- **B.** $18\sqrt{5}+12\sqrt{2}$
- **C.** $17\sqrt{6}$
- **D.** $83\sqrt{6}$

24. Simplify completely.

$$\frac{\sqrt{3}\sqrt{90}}{\sqrt{5}}$$

- **A.** $9\sqrt{6}$
- **B.** $6\sqrt{3}$
- **C.** $3\sqrt{18}$
- **D.** $3\sqrt{6}$

25. Solve for x.

$$2(-3x+4)=-2x+36$$

- **A.** $x=-9$
- **B.** $x=-5$
- **C.** $x=-7$
- **D.** $x=-11$

Answers.

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