## MTH 05 Sample Final Exam, Version 8

**1. Simplify Completely.**

$$(19x^2 - 18x + 18) - (-9x^2 - 2x + 2)$$

- **A.** $28x^2 - 16x + 20$
- **B.** $10x^2 - 16x + 16$
- **C.** $28x^2 + 20x + 16$
- **D.** $28x^2 - 16x + 16$

**2. Simplify.**

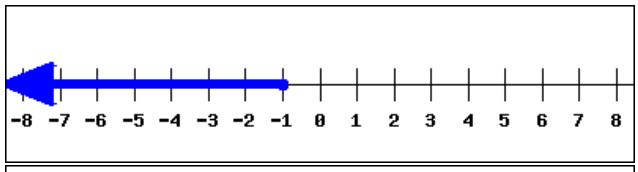
$$4\sqrt{5} - 5\sqrt{500}$$

- **A.** $-496\sqrt{5}$
- **B.** $20 - 25\sqrt{10}$
- **C.** $-46\sqrt{5}$
- **D.** $46\sqrt{5}$

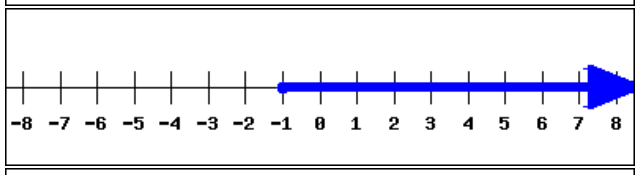
**3. Find the graph of the solution to the inequality.**

$$5x + 1 \leq 8x + 4$$

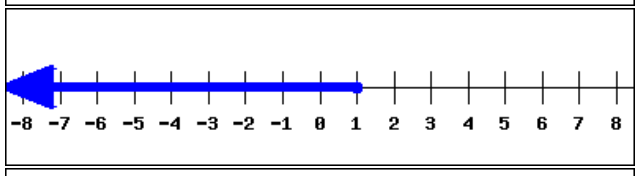
**A**



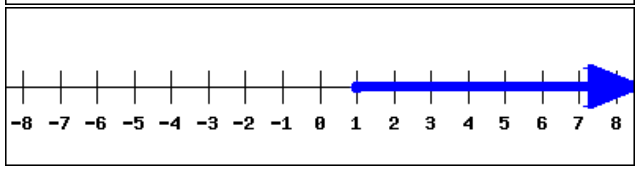

**B**




**C**




**D**




**4 Which of the following is a factor of the polynomial?**

$$3ac - 6ad + 11bc - 22bd$$

- **A.** $3a - 11b$
- **B.** $c + 2d$
- **C.** $3a + 11b$
- **D.** $3c + 11d$

**5. Find the equation of the line passing through the points $(-3,-7)$ and $(7,13)$. Write the equation in slope-intercept form.**

- **A.** $y = -2x + 27$
- **B.** $y = 2x - 7$
- **C.** $y = -2x - 13$
- **D.** $y = 2x - 1$

**6. Solve for $x$.**

$$\frac{x-8}{9} = \frac{x-2}{6} - \frac{4}{9}$$

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

**7. Find all solutions to the equation.**

$$3x^2 + 9x = 0$$

- **A.** $x = 0$ *or* $x = -3$
- **B.** $x = 0$ *or* $x = 3$
- **C.** *Only* $x = -3$
- **D.** *Only* $x = 3$

**8. What is the value of the $y$-coordinate of the solution to the system of equations.**

$$\begin{aligned} -x + y &= 9 \\ 5x + 5y &= 5 \end{aligned}$$

- **A.** $y = 7$
- **B.** $y = 3$
- **C.** $y = 9$
- **D.** $y = 5$

**9. Find the equation of the vertical line passing through the point $(-4, 7)$.**

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

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

$$3x^2 + 17x + 20$$

- **A.** $x + 5$
- **B.** $3x + 5$
- **C.** $3x - 5$
- **D.** $x - 4$

**11. Multiply.**

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

- **A.** $5x^3 - 21x^2 + 3x + 18$
- **B.** $5x^3 - 9x^2 - 15x + 18$
- **C.** $5x^3 - 21x^2 - 15x + 18$
- **D.** $5x^3 - 9x^2 + 3x + 18$

**12. Factor completely.**

$$50x^3 - 18xy^2$$

- **A.** $2x\left(25x^2 - 9y^2\right)$
- **B.** $2\left(25x^3 - 9xy^2\right)$
- **C.** $2x(5x - 3y)^2$
- **D.** $2x(5x - 3y)(5x + 3y)$

**13. Solve for $x$.**

$$z = 5x + 4y$$

- **A.** $x = \dfrac{z + 4y}{5}$
- **B.** $x = \dfrac{z}{5} - 4y$
- **C.** $x = 5(z - 4y)$
- **D.** $x = \dfrac{z - 4y}{5}$

---

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

**65 subtracted from 5 times a number is 38.**

- **A.** $5(65 - x) = 38$
- **B.** $5(x - 65) = 38$
- **C.** $65 - 5x = 38$
- **D.** $5x - 65 = 38$

---

**15. Simplify.**

$$(11x^8y^{-2})(4x^{-1}y^4)$$

- A. $44x^7y^2$
- B. $\dfrac{44x^9}{y^6}$
- C. $15x^7y^2$
- D. $\dfrac{44}{x^8y^8}$

---

**16. Simplify.**

$$(-2\,x^4\,y^6\,z^3\,)^2$$

- **A.** $-4x^8y^{12}z^6$
- **B.** $4x^8y^{12}z^6$
- **C.** $4x^6y^8z^5$
- **D.** $-4x^4y^6z^3$

---

**17. Simplify completely.**

$$\frac{\sqrt{7}\sqrt{42}}{\sqrt{2}}$$

- **A.** $3\sqrt{7}$
- **B.** $7\sqrt{21}$
- **C.** $49\sqrt{3}$
- **D.** $7\sqrt{3}$

**18. Find the slope and $y$-intercept for the graph of the equation.**

$$-2x-5y=-30$$

- **A. Slope** $=\frac{2}{5}$ **and** $y$**-intercept** $=(0,6)$
- **B. Slope** $=-\frac{2}{5}$ **and** $y$**-intercept** $=(0,6)$
- **C. Slope** $=-\frac{5}{2}$ **and** $y$**-intercept** $=(0,-30)$
- **D. Slope** $=\frac{5}{2}$ **and** $y$**-intercept** $=(0,-30)$

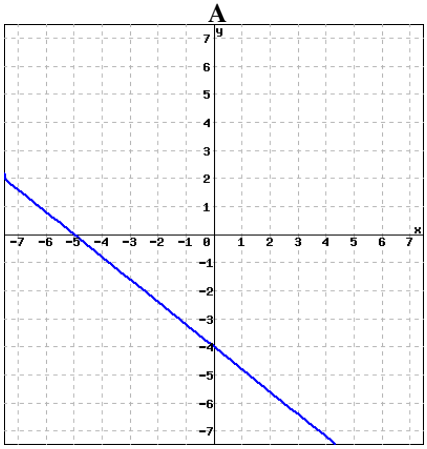
**19. Simplify completely.**

$$\frac{-10x^{12}-4x^6+8x^2}{-2x^2}$$

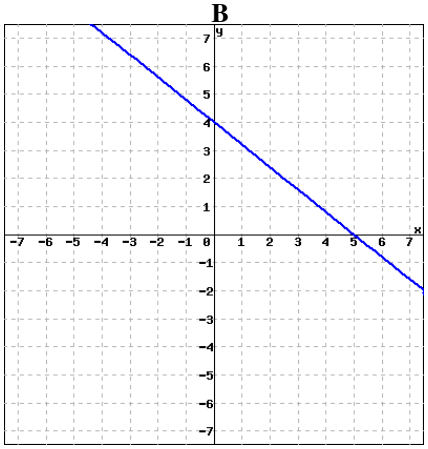
- **A.** $-10x^{12}-4x^6$
- **B.** $5x^{10}+2x^4$
- **C.** $5x^{10}+2x^4-4$
- **D.** $5x^{10}-2x^4+4$

**20. Which of the following is the graph of the equation** $12x-15y=-60$?

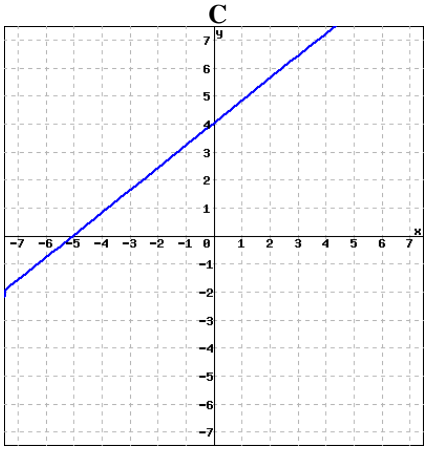
**A**



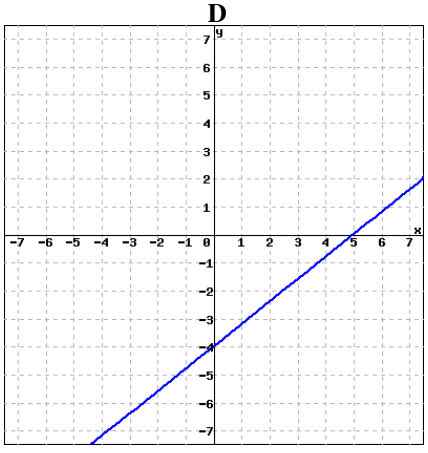
**B**



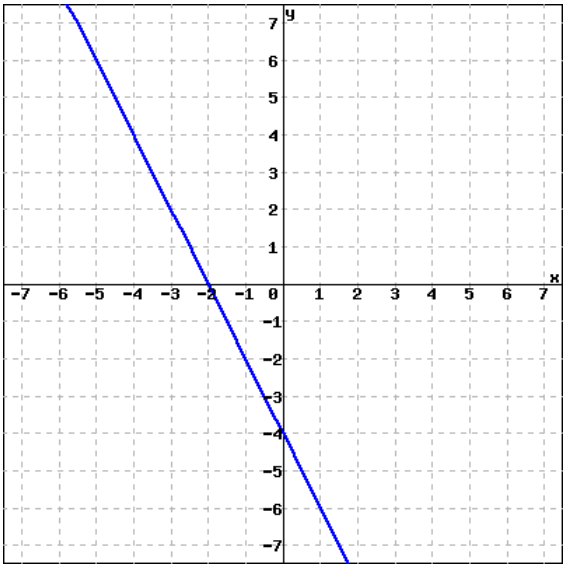
**C**



**D**

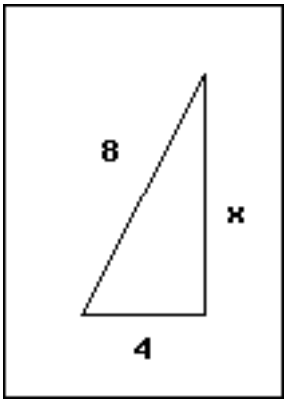


**21. What is the slope of the line graphed below?**




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

**22. What is the value of $x$ in the right triangle?**




- **A.** $3\sqrt{4}$
- **B.** $4\sqrt{3}$
- **C.** $2$
- **D.** $\sqrt{2}$

**23. Given $a = 2$ and $b = -10$, evaluate the expression given below.**

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

- **A.** 184
- **B.** 224
- **C.** 216
- **D.** $-176$

**24. Simplify completely.**

$$\sqrt{6}(\sqrt{66}+4\sqrt{6})$$

- **A.** $36\sqrt{11}$
- **B.** $6\sqrt{11}+24$
- **C.** $11\sqrt{6}+24$
- **D.** $6\sqrt{11}+4\sqrt{6}$

**25. Solve for $x$.**

$$2(3x+4) = -2x+24$$

- **A.** $x = 3$
- **B.** $x = 0$
- **C.** $x = 1$
- **D.** $x = 2$

**Answers.**

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