## MTH 05 Sample Final Exam, Version 6

**1. Simplify completely.**

$$\frac{\sqrt{3}\sqrt{36}}{\sqrt{2}}$$

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

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

$$3x^2+17x+10$$

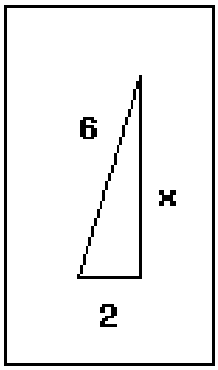
- **A.** $x-5$
- **B.** $3x+2$
- **C.** $3x-2$
- **D.** $x+2$

**3. Simplify completely.**

$$\frac{-4x^{17}+6x^6-8x^3}{-2x^3}$$

- **A.** $2x^{14}+3x^3-4$
- **B.** $-4x^{17}+6x^6$
- **C.** $2x^{14}-3x^3$
- **D.** $2x^{14}-3x^3+4$

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




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

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

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

**6. Simplify.**

$$8\sqrt{32} + 3\sqrt{50}$$

- **A.** $16\sqrt{4}+6\sqrt{5}$
- **B.** $35\sqrt{2}$
- **C.** $203\sqrt{2}$
- **D.** $47\sqrt{2}$

---

**7. Solve for $y$.**

$$z = 4x + 6y$$

- **A.** $y = 6(z - 4x)$
- **B.** $y = \dfrac{z - 4x}{6}$
- **C.** $y = \dfrac{z}{6} - 4x$
- **D.** $y = \dfrac{z + 4x}{6}$

---

**8. Simplify Completely.**

$$(10x^2 - 10x + 11) - (-7x^2 - 5x + 5)$$

- **A.** $17x^2 - 5x + 6$
- **B.** $17x^2 + 15x + 6$
- **C.** $3x^2 - 5x + 6$
- **D.** $17x^2 - 5x + 16$

---

**9. What is the value of the $x$-coordinate of the solution to the system of equations.**

$$\begin{aligned} -4x + 3y &= -10 \\ -2x + 4y &= -10 \end{aligned}$$

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

---

**10. Simplify completely.**

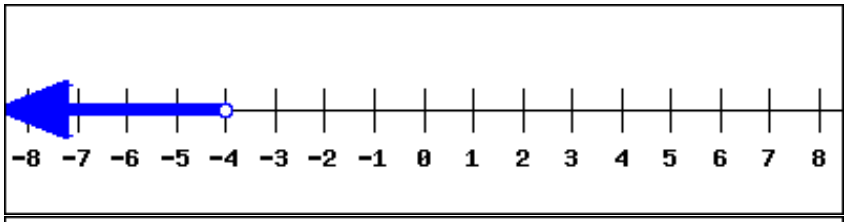
$$\sqrt{6}(\sqrt{42} + 2\sqrt{6})$$

- **A.** $7\sqrt{6}+12$
- **B.** $36\sqrt{7}$
- **C.** $6\sqrt{7}+12$
- **D.** $6\sqrt{7}+2\sqrt{6}$

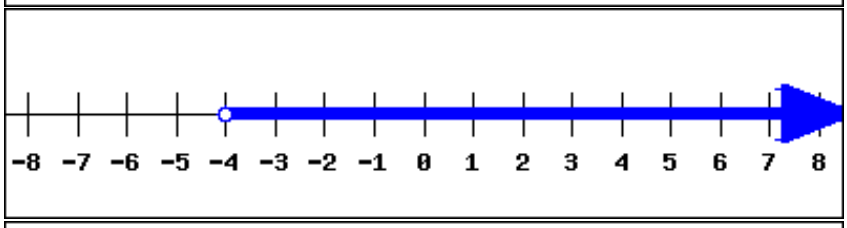
**11. Find the graph of the solution to the inequality.**

$$-5x-5>-3x+3$$

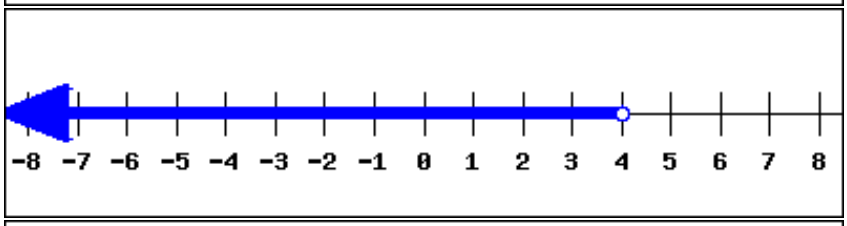
**A**



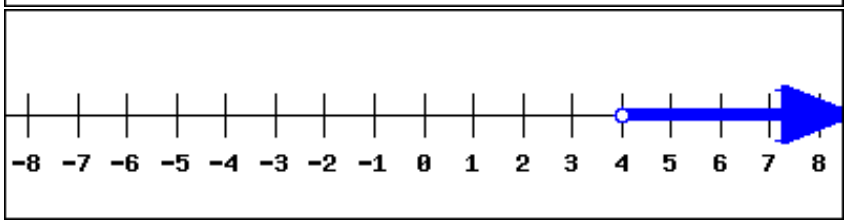

**B**




**C**




**D**



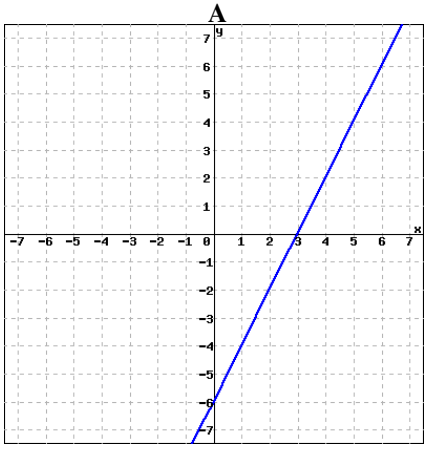

**12. Solve for $x$.**

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

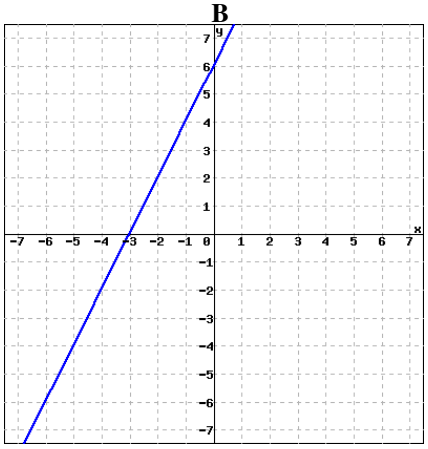
- **A.** $x=-4$
- **B.** $x=-1$
- **C.** $x=-5$
- **D.** $x=2$

**13. Which of the following is the graph of the equation $4x-2y=-12$?**

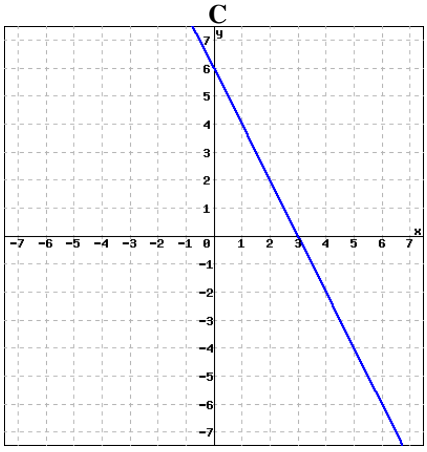
**A**



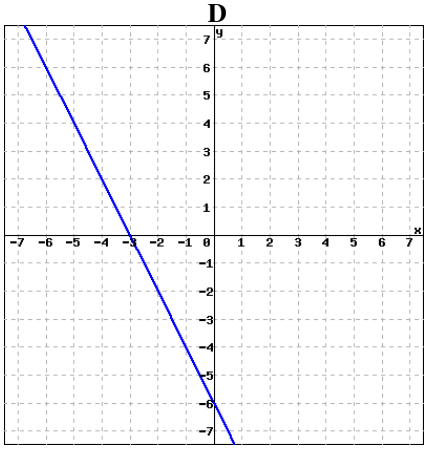
**B**



**C**



**D**



---

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

$50$ **less than** $8$ **times a number is** $51$**.**

- **A.** $8y-50=51$
- **B.** $50-8y=51$
- **C.** $8(50-y)=51$
- **D.** $8(y-50)=51$

---

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

$$x^2+20=-9x$$

- **A.** *Only* $x=-2$
- **B.** $x=-2$ *or* $x=-7$
- **C.** *Only* $x=-5$
- **D.** $x=-4$ *or* $x=-5$

**16. Factor completely.**

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

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

**17. Given $a = -2$ and $b = 4$, evaluate the expression given below.**

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

- **A.** $-8$
- **B.** 40
- **C.** 24
- **D.** 8

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

$$15cw + 18cz + 5dw + 6dz$$

- **A.** $3w + z$
- **B.** $3c + d$
- **C.** $3c - d$
- **D.** $5w - 6z$

**19. Multiply.**

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

- **A.** $4x^3 + 18x^2 - 30x + 18$
- **B.** $4x^3 + 6x^2 - 12x + 18$
- **C.** $4x^3 + 18x^2 - 12x + 18$
- **D.** $4x^3 + 6x^2 - 30x + 18$

**20. Simplify.**

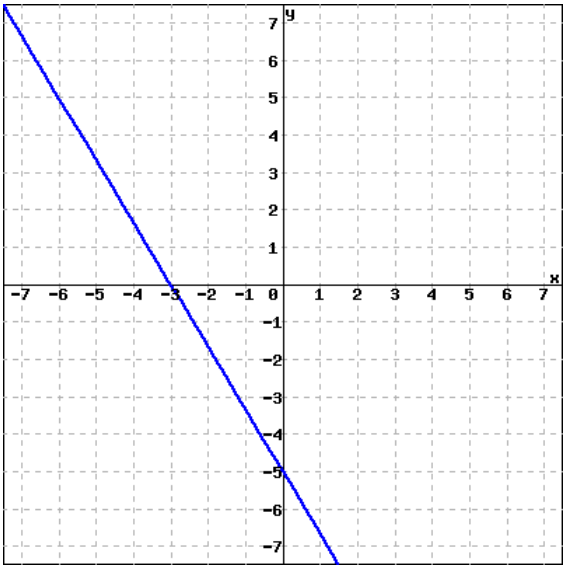
$$(-5\ x^2\ y^{-1}\ )^3$$

- **A.** $-\dfrac{15x^6}{y^3}$
- **B.** $-\dfrac{15x^2}{y}$
- **C.** $-\dfrac{125x^6}{y^3}$
- **D.** $-125x^5y^2$

**21. Find the equation of the line passing through the points $(-4,-14)$ and $(6,26)$. Write the equation in slope-intercept form.**

- **A.** $y = -4x - 30$
- **B.** $y = 4x + 2$
- **C.** $y = -4x + 50$
- **D.** $y = 4x - 14$

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




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

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

$$-3x+10y=60$$

- **A. Slope** $= -\dfrac{3}{10}$ **and** $y$**-intercept** $= (0,6)$
- **B. Slope** $= \dfrac{10}{3}$ **and** $y$**-intercept** $= (0,60)$
- **C. Slope** $= \dfrac{3}{10}$ **and** $y$**-intercept** $= (0,6)$
- **D. Slope** $= -\dfrac{10}{3}$ **and** $y$**-intercept** $= (0,60)$

**24. Solve for $x$.**

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

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

**25. Simplify.**

$$(9x^5y^3)(4x^2y^2)$$

- **A.** $13x^7y^5$
- **B.** $36x^7y^5$
- **C.** $36x^{10}y^6$
- **D.** $36x^3y$

**Answers.**

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