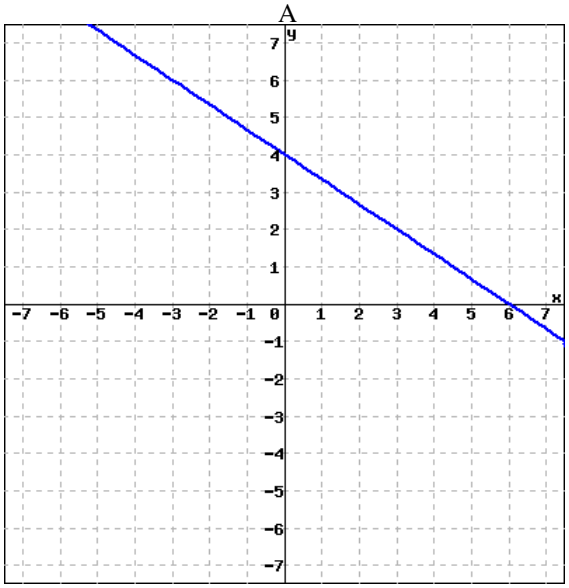
**MTH 05 Sample Final Exam, Version 4**

---

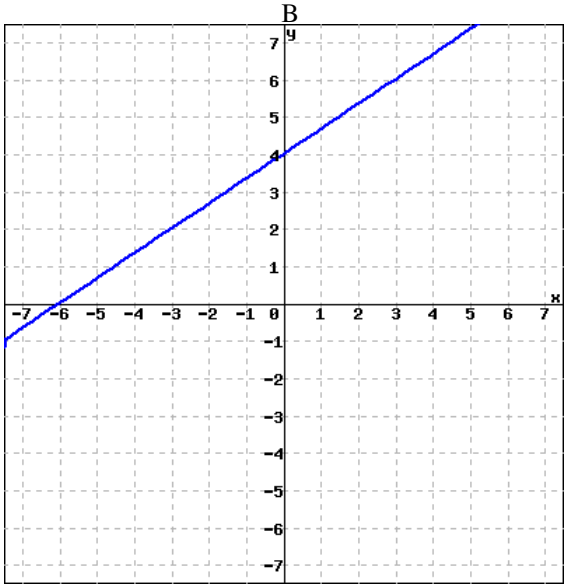
**Problem 1.** (4 pts) Which of the following is the graph of the equation

$$-4x+6y=24?$$

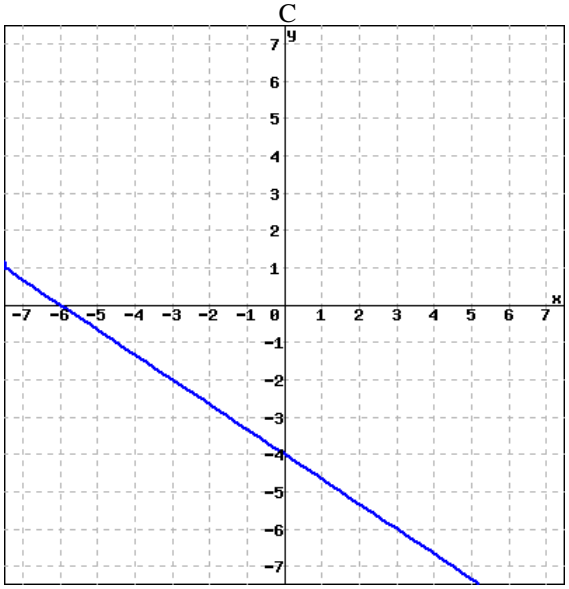
A



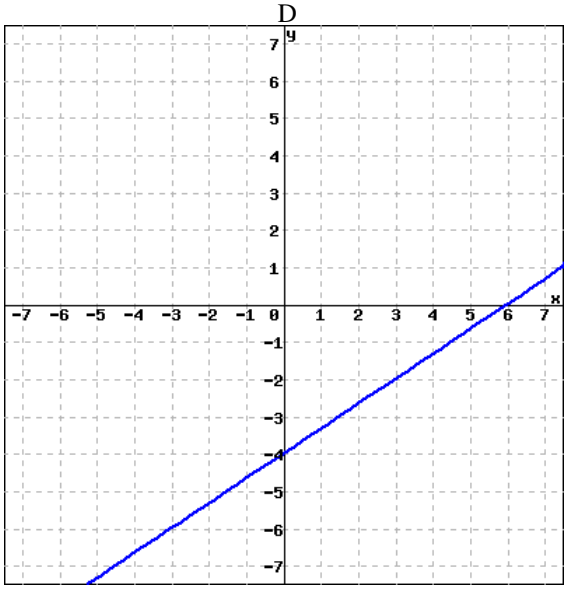

B




C




D



**Problem 2.** (4 pts) Which of the following is a factor of the polynomial?

$$3cw + 6cz - 2dw - 4dz$$

- A. $3w - 2z$
- B. $w + 2z$
- C. $w - 2z$
- D. $3c + 2d$

---

**Problem 3.** (4 pts) Which of the following is a factor of the polynomial?

$$3x^2 + 26x - 9$$

- A. $x - 9$
- B. $3x + 9$
- C. $3x + 1$
- D. $x + 9$

---

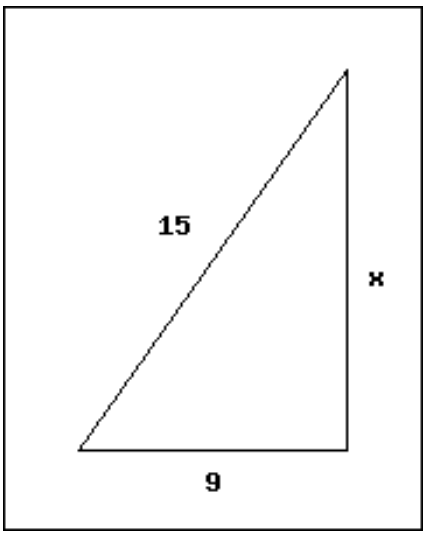
**Problem 4.** (4 pts) What is the value of the $y$-coordinate of the solution to the system of equations.

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

- A. $y = -1$
- B. $y = 2$
- C. $y = 0$
- D. $y = 1$

---

**Problem 5.**(4 pts) What is the value of $x$ in the right triangle?




- A. 6
- B. $\sqrt{12}$
- C. 12
- D. $\sqrt{6}$

**Problem 6.** (4 pts)
Peter bought 4 toy cars for $76.
How many cars can he buy for $ 171?

- A. 8
- B. 13
- C. 9
- D. 12

---

**Problem 7.** (4 pts) Simplify Completely.

$$(4x-5)(x^2-2x-3)$$

- A. $4x^3-3x^2-2x+15$
- B. $4x^3-13x^2-12x+15$
- C. $4x^3-13x^2-2x+15$
- D. $4x^3-3x^2-12x+15$

---

**Problem 8.** (4 pts) Find the equation of the horizontal line passing through the point $(4,-10)$.

- A. $x=4$
- B. $y=-10$
- C. $y=x-10$
- D. $y=-\frac{5}{2}x-10$

---

**Problem 9.** (4 pts) Solve the equation for $x$

$$21+3x=2(3+3x)$$

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

---

**Problem 10.** (4 pts) Simplify.

$$8\sqrt{5}\ -5\sqrt{125}$$

- A. $40-25\sqrt{5}$
- B. $17\sqrt{5}$
- C. $-17\sqrt{5}$
- D. $-117\sqrt{5}$

---

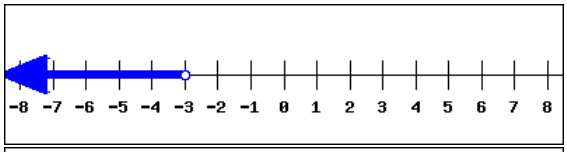
**Problem 11.** (4 pts) Over four years the price of a car decreased from $20000 by 70%. What is the price of the car now?

- A. $28571
- B. $6000
- C. $14000
- D. $66667

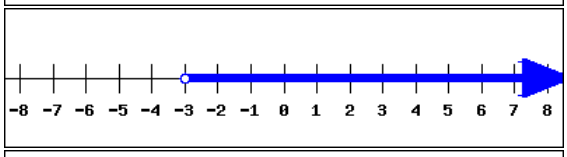
**Problem 12.**(4 pts) Find the graph of the solution to the inequality.

$$-3x-9<x+3$$

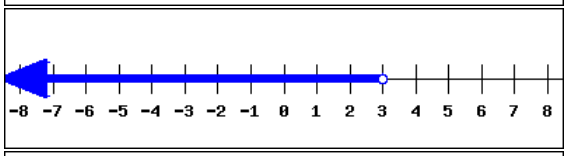
A



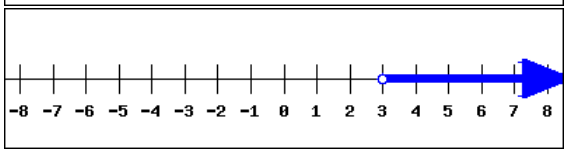

B




C




D




---

**Problem 13.** (4 pts) Find all the solutions to the equation

$$2y^2+12y=0$$

- A. y = 0 or y = -6
- B. Only y = 6
- C. y = 0 or y = 6
- D. Only y = -6

---

**Problem 14.** (4 pts) Solve for $x$.

$$z=9x+5y$$

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

---

**Problem 15.** (4 pts) Factor completely.

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

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

**Problem 16.** (4 pts) Find the slope and $y$-intercept for the graph of the equation.

$$5x-3y=-18$$

- A. Slope $=\frac{3}{5}$ and $y$-intercept $=(0,-18)$
- B. Slope $=-\frac{5}{3}$ and $y$-intercept $=(0,6)$
- C. Slope $=-\frac{3}{5}$ and $y$-intercept $=(0,-18)$
- D. Slope $=\frac{5}{3}$ and $y$-intercept $=(0,6)$

---

**Problem 17.** (4 pts) Find all the solutions to the equation.

$$2y^2=8$$

- A. $y=0$ *or* $y=4$
- B. $y=-2$ *or* $y=2$
- C. *Only* $y=2$
- D. $y=2$ *or* $y=4$

---

**Problem 18.** (4 pts) Multiply. Give the answer in scientific notation.

$$(3\times10^5)(5\times10^9)$$

- A. $1.5\times10^{13}$
- B. $15\times10^{14}$
- C. $1.5\times10^{15}$
- D. $1.5\times10^{14}$

---

**Problem 19.** (4 pts) Evaluate $h(-5)$ for $h(x)=-2x^2-x-12$

- A. $-43$
- B. 43
- C. 67
- D. $-57$

---

**Problem 20.** (4 pts) If $n$ represents a number, which equation is a correct translation of the sentence?

49 **subtracted from** 7 **times a number is** 11**.**

- A. $49-7n=11$
- B. $7n-49=11$
- C. $7(49-n)=11$
- D. $7(n-49)=11$

---

**Problem 21.** (4 pts) Simplify Completely. $(12x^2-10x+11)-(-6x^2-4x+2)$

- A. $18x^2-6x+9$
- B. $18x^2-6x+13$
- C. $18x^2+14x+9$
- D. $6x^2-6x+9$

**Problem 22.** (4 pts) Simplify completely.

$$\frac{\sqrt{3}\sqrt{30}}{\sqrt{5}}$$

- A. $2\sqrt{3}$
- B. $9\sqrt{2}$
- C. $3\sqrt{2}$
- D. $3\sqrt{6}$

---

**Problem 23.** (4 pts) Find the equation of the line passing through the points $(-1,-2)$ and $(5,-14)$. Write the equation in slope intercept form.

- A. $y = 2x + 0$
- B. $y = -2x - 2$
- C. $y = -2x - 4$
- D. $y = 2x - 24$

---

**Problem 24.** (4 pts) Simplify completely.

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

- A. $2x^{14} + 3x^5 - 4$
- B. $2x^{14} - 3x^5$
- C. $-4x^{17} + 6x^8$
- D. $2x^{14} - 3x^5 + 4$

---

**Problem 25.** (4 pts) Simplify.

$$\frac{48x^6(y^{-7})^3}{4x^{-5}y^{-22}}$$

- A. $\dfrac{12x}{y^{43}}$
- B. $12x^{11}y$
- C. $\dfrac{x^{11}}{12y^{43}}$
- D. $12xy^{18}$