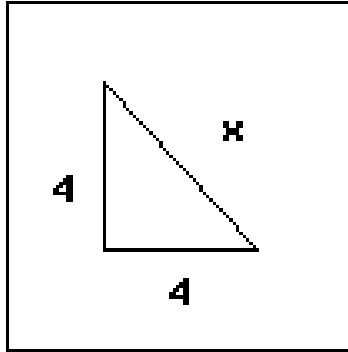


**MTH 05 Sample Final Exam, Version 7**

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**Problem 1.** (4 pts) What is the value of  $x$  in the right triangle?



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

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**Problem 2.** (4 pts) Find all the solutions to the equation

$$3y^2 + 18y = 0$$

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

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**Problem 3.** (4 pts) Evaluate  $h(-7)$  for  $h(x) = 2x^2 + 4x - 7$

- A.  $-133$
- B.  $119$
- C.  $63$
- D.  $133$

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

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

- A.  $5x^3 - 6x^2 + 18x - 8$
- B.  $5x^3 - 14x^2 + 10x - 8$
- C.  $5x^3 - 6x^2 + 10x - 8$
- D.  $5x^3 - 14x^2 + 18x - 8$

**Problem 5.** (4 pts) Solve the equation for  $x$

$$32 + 2x = -2(-4 - 3x)$$

- A.  $x = 10$
  - B.  $x = 4$
  - C.  $x = 6$
  - D.  $x = 8$
- 

**Problem 6.** (4 pts)

Peter bought 4 toy cars for \$36.

How many cars can he buy for \$ 27?

- A. 1
  - B. 2
  - C. 6
  - D. 3
- 

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

$$8\sqrt{108} + \sqrt{75}$$

- A.  $53\sqrt{3}$
  - B.  $24\sqrt{6} + 3\sqrt{5}$
  - C.  $313\sqrt{3}$
  - D.  $49\sqrt{3}$
- 

**Problem 8.** (4 pts) Simplify.

$$\frac{36x^8(y^{-4})^3}{4x^{-2}y^{-26}}$$

- A.  $\frac{x^{10}}{9y^{38}}$
  - B.  $9x^{10}y^{14}$
  - C.  $\frac{9x^6}{y^{38}}$
  - D.  $9x^6y^{25}$
- 

**Problem 9.** (4 pts) Find the slope and y-intercept for the graph of the equation.

$$6x - 10y = -50$$

- A. Slope =  $\frac{5}{3}$  and y-intercept =  $(0, -50)$
- B. Slope =  $-\frac{3}{5}$  and y-intercept =  $(0, 5)$
- C. Slope =  $-\frac{5}{3}$  and y-intercept =  $(0, -50)$
- D. Slope =  $\frac{3}{5}$  and y-intercept =  $(0, 5)$

**Problem 10.** (4 pts) Find all the solutions to the equation.

$$-3x^2 = -147$$

- A.  $x = 7$  or  $x = 49$
- B.  $x = -7$  or  $x = 7$
- C. Only  $x = 7$
- D.  $x = 0$  or  $x = 49$

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**Problem 11.** (4 pts) Over four years the price of a car decreased to \$9000, which is 25% of the original price. What was the original price of the car?

- A. \$6750
- B. \$36000
- C. \$12000
- D. \$2250

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**Problem 12.** (4 pts) What is the value of the  $y$ -coordinate of the solution to the system of equations.

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

- A.  $y = -2$
- B.  $y = -4$
- C.  $y = -6$
- D.  $y = 0$

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**Problem 13.** (4 pts) Simplify completely.

$$\frac{\sqrt{6}\sqrt{84}}{\sqrt{7}}$$

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

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**Problem 14.** (4 pts) Simplify completely.

$$\frac{-6x^{11} - 4x^7 + 8x^2}{-2x^2}$$

- A.  $3x^9 + 2x^5 - 4$
- B.  $3x^9 + 2x^5$
- C.  $-6x^{11} - 4x^7$
- D.  $3x^9 - 2x^5 + 4$

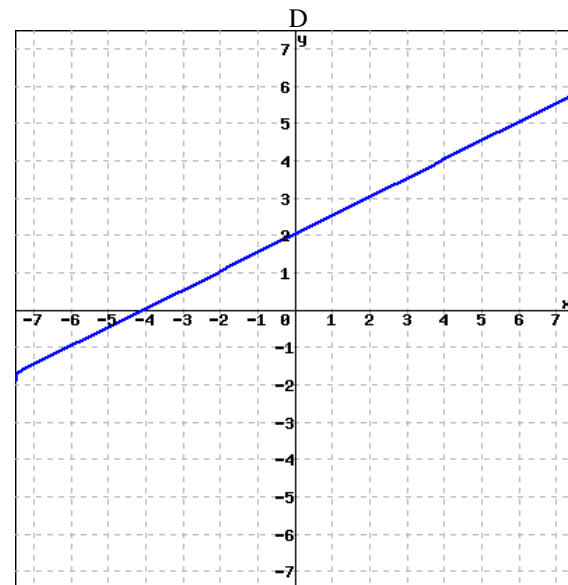
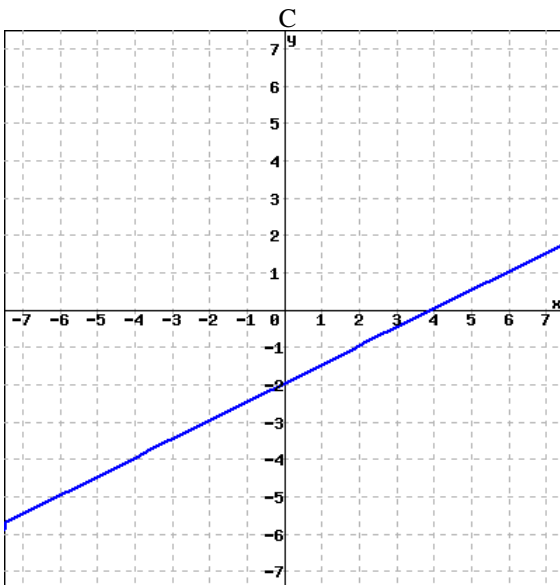
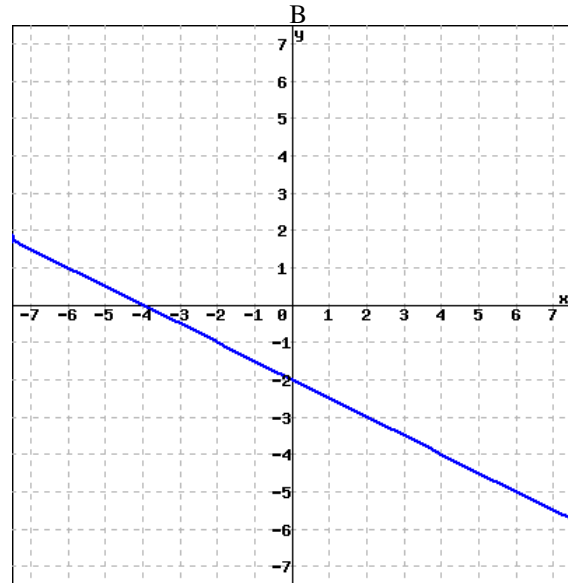
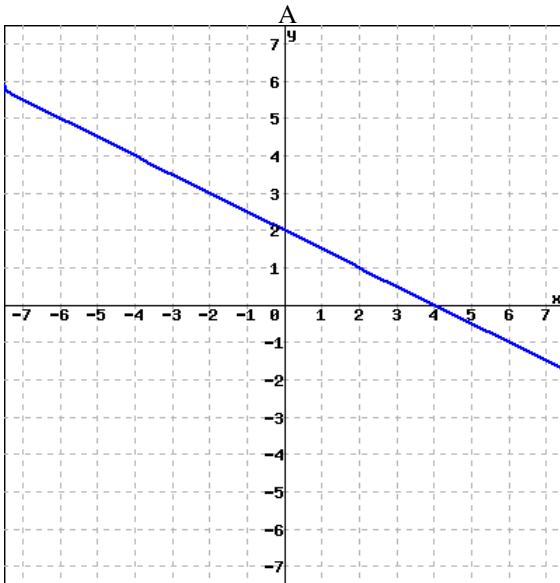
**Problem 15.** (4 pts) Which of the following is a factor of the polynomial?

$$15ax - 6ay - 20bx + 8by$$

- A.  $3x - 4y$
- B.  $5x - 2y$
- C.  $5x + 2y$
- D.  $3a + 4b$

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**Problem 16.** (4 pts) Which of the following is the graph of the equation  $2x - 4y = 8$ ?



**Problem 17.** (4 pts) Simplify Completely.

$$(4x^2 - 18x + 14) - (-2x^2 - 4x + 4)$$

- A.  $2x^2 - 14x + 10$
  - B.  $6x^2 - 14x + 10$
  - C.  $6x^2 + 22x + 10$
  - D.  $6x^2 - 14x + 18$
- 

**Problem 18.** (4 pts) Find the equation of the horizontal line passing through the point  $(-9, 13)$ .

- A.  $y = x + 13$
  - B.  $x = -9$
  - C.  $y = 13$
  - D.  $y = -\frac{13}{9}x + 13$
- 

**Problem 19.** (4 pts) Find the equation of the line passing through the points  $(-5, -21)$  and  $(3, 3)$ . Write the equation in slope intercept form.

- A.  $y = -3x + 12$
  - B.  $y = -3x - 36$
  - C.  $y = 3x - 21$
  - D.  $y = 3x - 6$
- 

**Problem 20.** (4 pts) Multiply. Give the answer in scientific notation.

$$(6 \times 10^{-2})(7 \times 10^{-4})$$

- A.  $4.2 \times 10^{-5}$
  - B.  $42 \times 10^{-6}$
  - C.  $4.2 \times 10^{-7}$
  - D.  $4.2 \times 10^{-6}$
- 

**Problem 21.** (4 pts) If  $k$  represents a number, which equation is a correct translation of the sentence?

80 subtracted from 5 times a number is 69.

- A.  $80 - 5k = 69$
  - B.  $5(k - 80) = 69$
  - C.  $5(80 - k) = 69$
  - D.  $5k - 80 = 69$
- 

**Problem 22.** (4 pts) Which of the following is a factor of the polynomial?

$$3x^2 + x - 4$$

- A.  $x + 1$
- B.  $3x - 1$
- C.  $3x - 4$
- D.  $x - 1$

**Problem 23.** (4 pts) Solve for  $x$ .

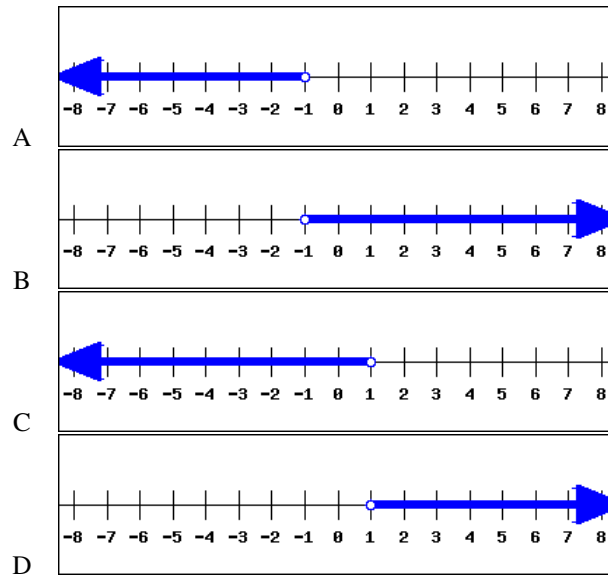
$$z = 4x + 6y$$

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

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**Problem 24.** (4 pts) Find the graph of the solution to the inequality.

$$-9x + 4 > 5x + 18$$



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**Problem 25.** (4 pts) Factor completely.

$$180x^2y - 5y^3$$

- A.  $5y(36x^2 - y^2)$
- B.  $5y(6x - y)(6x + y)$
- C.  $5y(6x - y)^2$
- D.  $5(36x^2y - y^3)$