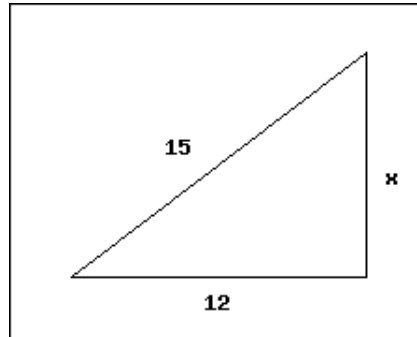


MTH 05 Sample Final Exam, Version 3

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



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

Problem 2. (4 pts) Evaluate $f(-7)$ for $f(x) = x^2 - 2x - 4$

- A. 39
- B. 59
- C. -39
- D. 31

Problem 3. (4 pts) Over four years the price of a car decreased from \$20000 to \$11000. What is the percent decrease in price?

- A. 45%
- B. 18%
- C. 2%
- D. 55%

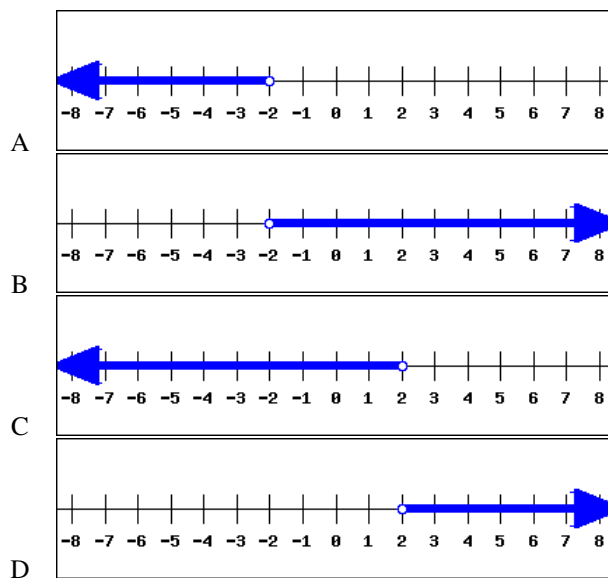
Problem 4. (4 pts) Solve for y .

$$z = 6x + 5y$$

- A. $y = 5(z - 6x)$
- B. $y = \frac{z}{5} - 6x$
- C. $y = \frac{z + 6x}{5}$
- D. $y = \frac{z - 6x}{5}$

Problem 5. (4 pts) Find the graph of the solution to the inequality.

$$x - 3 > 9x + 13$$



Problem 6. (4 pts) Which of the following is a factor of the polynomial?

$$3x^2 + 4x - 7$$

- A. $x + 1$
- B. $x + 7$
- C. $3x - 7$
- D. $3x + 7$

Problem 7. (4 pts) Simplify Completely.

$$(13x^2 - 8x + 9) - (-6x^2 - 2x + 3)$$

- A. $19x^2 - 6x + 6$
- B. $19x^2 + 10x + 6$
- C. $19x^2 - 6x + 12$
- D. $7x^2 - 6x + 6$

Problem 8. (4 pts) If k represents a number, which equation is a correct translation of the sentence?

71 is 24 less than 5 times a number.

- A. $71 = 5k - 24$
- B. $71 = 24 - 5k$
- C. $71 = 5(k - 24)$
- D. $71 = 5(24 - k)$

Problem 9. (4 pts) Simplify.

$$\frac{45x^6(y^4)^2}{15x^{-7}y^{-21}}$$

- A. $\frac{x^{13}}{3y^{13}}$
- B. $\frac{3}{xy^{13}}$
- C. $\frac{3y^{27}}{x}$
- D. $3x^{13}y^{29}$

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

$$-3x^2 - 6x = 0$$

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

Problem 11. (4 pts) Simplify completely.

$$\frac{14x^{12} - 28x^7 - 35x^3}{-7x^3}$$

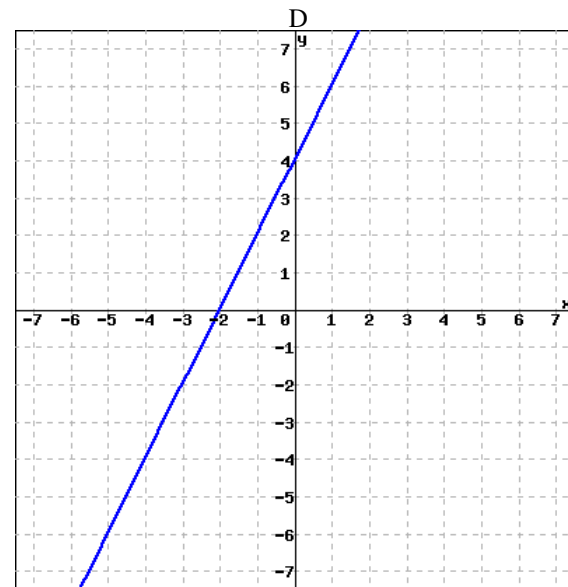
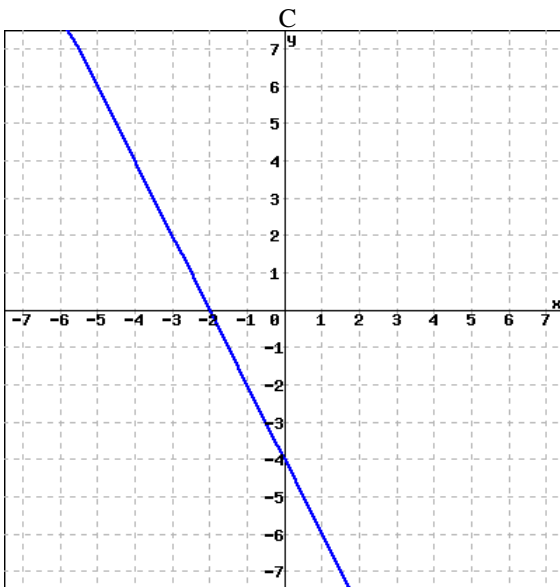
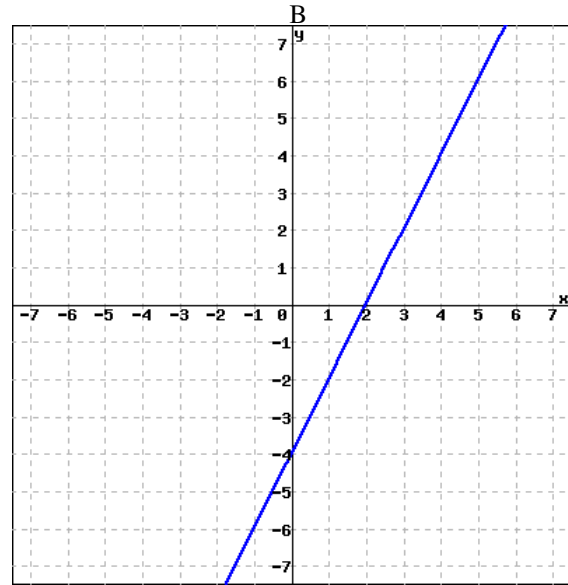
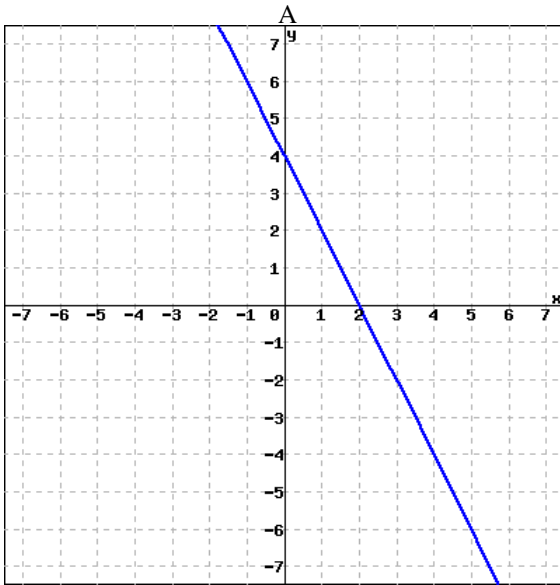
- A. $-2x^9 + 4x^4$
- B. $-2x^9 - 4x^4 - 5$
- C. $-2x^9 + 4x^4 + 5$
- D. $14x^{12} - 28x^7$

Problem 12. (4 pts) Find the equation of the horizontal line passing through the point $(3, -2)$.

- A. $y = -\frac{2}{3}x - 2$
- B. $y = -2$
- C. $y = x - 2$
- D. $x = 3$

Problem 13. (4 pts) Which of the following is the graph of the equation

$$6x - 3y = -12?$$



Problem 14. (4 pts) What is the value of the y -coordinate of the solution to the system of equations.

$$-4x + 3y = 0$$

$$-3x + y = 0$$

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

Problem 15. (4 pts) Find the slope and y-intercept for the graph of the equation.

$$5x - 2y = -10$$

- A. Slope = $-\frac{5}{2}$ and y-intercept = $(0, 5)$
 - B. Slope = $\frac{2}{5}$ and y-intercept = $(0, -10)$
 - C. Slope = $-\frac{2}{5}$ and y-intercept = $(0, -10)$
 - D. Slope = $\frac{5}{2}$ and y-intercept = $(0, 5)$
-

Problem 16. (4 pts) Simplify.

$$5\sqrt{20} + 3\sqrt{45}$$

- A. $13\sqrt{5}$
 - B. $25\sqrt{2} + 15\sqrt{3}$
 - C. $47\sqrt{5}$
 - D. $19\sqrt{5}$
-

Problem 17. (4 pts) Simplify completely.

$$\sqrt{7}(\sqrt{70} - 3\sqrt{7})$$

- A. $49\sqrt{10}$
 - B. $10\sqrt{7} - 21$
 - C. $7\sqrt{10} - 3\sqrt{7}$
 - D. $7\sqrt{10} - 21$
-

Problem 18. (4 pts) Find the equation of the line passing through the points $(-4, -14)$ and $(3, 0)$. Write the equation in slope intercept form.

- A. $y = -2x - 22$
 - B. $y = -2x + 6$
 - C. $y = 2x - 14$
 - D. $y = 2x - 6$
-

Problem 19. (4 pts)

Peter bought 3 toy cars for \$45.

How much do 7 cars cost?

- A. \$52
- B. \$105
- C. \$21
- D. \$41

Problem 20. (4 pts) Simplify Completely.

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

- A. $4x^3 + 13x^2 - 12x + 15$
- B. $4x^3 + 3x^2 - 12x + 15$
- C. $4x^3 + 3x^2 - 22x + 15$
- D. $4x^3 + 13x^2 - 22x + 15$

Problem 21. (4 pts) Multiply. Give the answer in scientific notation.

$$(5 \times 10^{-10})(7 \times 10^{-8})$$

- A. 3.5×10^{-18}
- B. 3.5×10^{-17}
- C. 35×10^{-18}
- D. 3.5×10^{-19}

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

$$30cw + 35cz + 12dw + 14dz$$

- A. $5c - 2d$
- B. $6w - 7z$
- C. $5w + 2z$
- D. $5c + 2d$

Problem 23. (4 pts) Find all the solutions to the equation.

$$-2x^2 = -72$$

- A. $x = 6$ or $x = 36$
- B. $x = 0$ or $x = 36$
- C. *Only* $x = 6$
- D. $x = -6$ or $x = 6$

Problem 24. (4 pts) Solve the equation for x

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

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

Problem 25. (4 pts) Factor completely.

$$100x^2y - 144y^3$$

- A. $4(25x^2y - 36y^3)$
- B. $4y(5x - 6y)^2$
- C. $4y(5x - 6y)(5x + 6y)$
- D. $4y(25x^2 - 36y^2)$