MTH 05 Sample Final Exam, Version 5

Problem 1. (4 pts) Find the slope and y-intercept for the graph of the equation.

$$-9x - 7y = -28$$

- A. Slope $= -\dfrac{9}{7}$ and y-intercept $= (0,4)$

- B. Slope $= \dfrac{9}{7}$ and y-intercept $= (0,4)$

- C. Slope $= \dfrac{7}{9}$ and y-intercept $= (0,-28)$

- D. Slope $= -\dfrac{7}{9}$ and y-intercept $= (0,-28)$

Problem 2. (4 pts) Simplify.

$$\sqrt{45} + 3\sqrt{80}$$

- A. $5\sqrt{3} + 15\sqrt{4}$
- B. $15\sqrt{5}$
- C. $57\sqrt{5}$
- D. $6\sqrt{5}$

Problem 3. (4 pts) Simplify Completely.
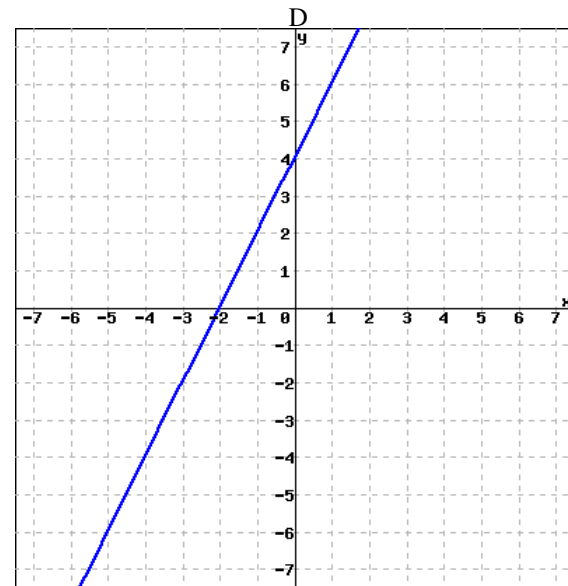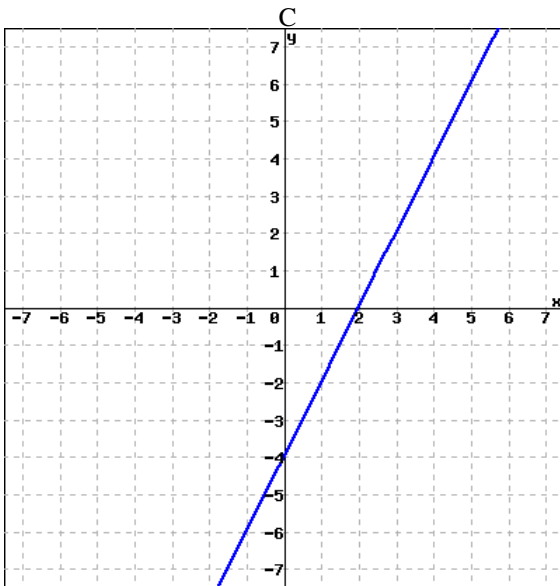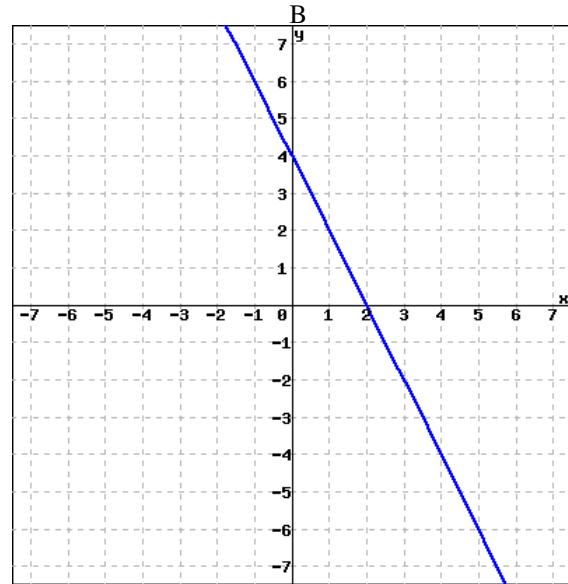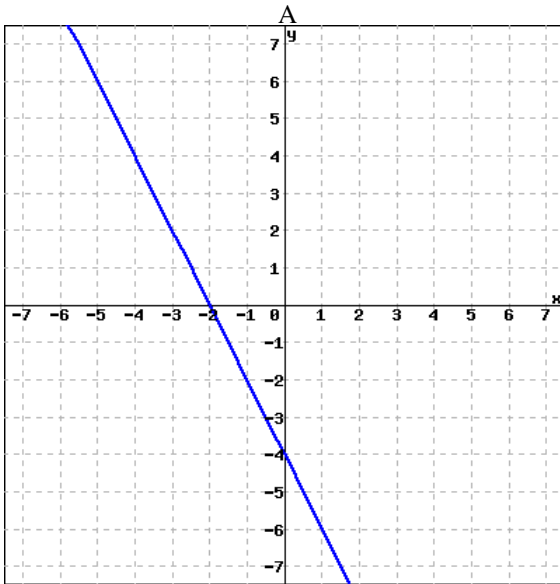
$$(5x - 4)(x^2 - 2x + 2)$$

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

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

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

- A. Only y = 1
- B. Only y = -1
- C. y = 0 or y = -1
- D. y = 0 or y = 1

Problem 5. (4 pts) Which of the following is the graph of the equation $4x - 2y = -8$?

A

B

C

D

Problem 6. (4 pts) If n represents a number, which equation is a correct translation of the sentence?

46 **is** 83 **less than** 6 **times a number.**

- A. $46 = 6(n - 83)$
- B. $46 = 83 - 6n$
- C. $46 = 6n - 83$
- D. $46 = 6(83 - n)$

Problem 7. (4 pts) Which of the following is a factor of the polynomial?

$$2cx - 5cy - 6dx + 15dy$$

- A. $c + 3d$
- B. $2x + 5y$
- C. $2x - 5y$
- D. $x - 3y$

Problem 8. (4 pts) Factor completely.

$$6x^2y - 96y^3$$

- A. $6y(x^2 - 16y^2)$
- B. $6y(x - 4y)^2$
- C. $6(x^2y - 16y^3)$
- D. $6y(x - 4y)(x + 4y)$

Problem 9. (4 pts) Find the equation of the line passing through the points $(-4, 13)$ and $(6, -7)$. Write the equation in slope intercept form.

- A. $y = -2x + 13$
- B. $y = -2x + 5$
- C. $y = 2x - 19$
- D. $y = 2x + 21$

Problem 10. (4 pts) Solve for x.

$$z = 9x + 3y$$

- A. $x = 9(z - 3y)$
- B. $x = \dfrac{z}{9} - 3y$
- C. $x = \dfrac{z - 3y}{9}$
- D. $x = \dfrac{z + 3y}{9}$

Problem 11. (4 pts) Find all the solutions to the equation.

$$5y^2 = 45$$

- A. $y = 0$ *or* $y = 9$
- B. $y = -3$ *or* $y = 3$
- C. $y = 3$ *or* $y = 9$
- D. *Only* $y = 3$

Problem 12. (4 pts) Evaluate $h(-7)$ for $h(x) = x^2 - 2x + 4$
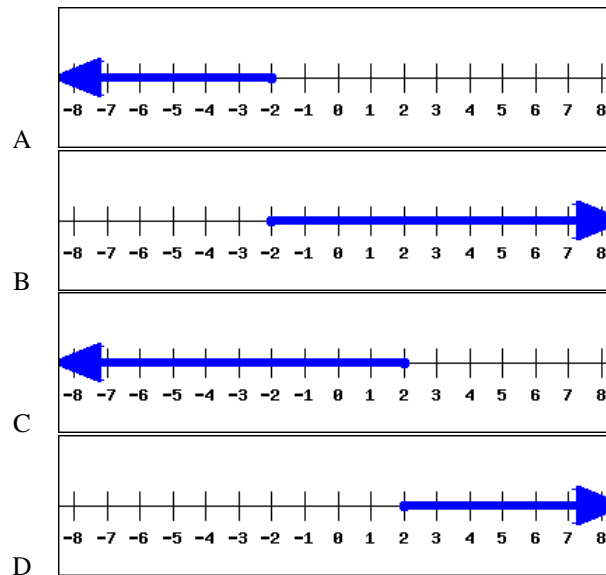
- A. 67
- B. 39
- C. -31
- D. 31

Problem 13. (4 pts) What is the value of the y-coordinate of the solution to the system of equations.

$$-4x+4y = 4$$
$$3x+y = 9$$

- A. $y = 3$
- B. $y = 1$
- C. $y = 4$
- D. $y = 2$

Problem 14. (4 pts) Find the graph of the solution to the inequality.

$$-8x+5 \leq x+23$$

A

B

C

D

Problem 15. (4 pts) Simplify completely.

$$\frac{\sqrt{2}\sqrt{36}}{\sqrt{6}}$$

- A. $2\sqrt{6}$
- B. $2\sqrt{3}$
- C. $3\sqrt{2}$
- D. $4\sqrt{3}$

Problem 16. (4 pts) Over four years the price of a car decreased to $19500, which is 65% of the original price. What was the original price of the car?

- A. $30000
- B. $55714
- C. $6825
- D. $12675

Problem 17. (4 pts) Simplify Completely. $(17x^2 - 19x + 15) - (-4x^2 - 2x + 5)$

- A. $13x^2 - 17x + 10$
- B. $21x^2 + 21x + 10$
- C. $21x^2 - 17x + 20$
- D. $21x^2 - 17x + 10$

Problem 18. (4 pts) Solve the equation for x

$$-28 + 3x = -2(-4 + 3x)$$

- A. $x = 5$
- B. $x = 6$
- C. $x = 3$
- D. $x = 4$

Problem 19. (4 pts) Which of the following is a factor of the polynomial?

$$2x^2 - 11x + 14$$

- A. $x + 2$
- B. $2x + 7$
- C. $x - 2$
- D. $2x - 2$

Problem 20. (4 pts) Simplify.

$$\frac{18x^8(y^{-3})^5}{2x^{-7}y^{-21}}$$

- A. $\dfrac{x^{15}}{9y^{36}}$

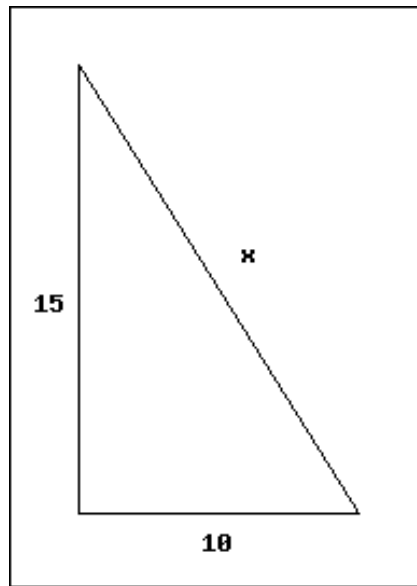- B. $\dfrac{9x}{y^{36}}$

- C. $9x^{15}y^6$

- D. $9xy^{23}$

Problem 21. (4 pts)
Peter bought 3 toy cars for $99.
How much do 10 cars cost?

- A. $109
- B. $330
- C. $92
- D. $30

Problem 22. (4 pts) What is the value of x in the right triangle?

- A. $5\sqrt{13}$
- B. $13\sqrt{5}$
- C. 5
- D. $\sqrt{5}$

Problem 23. (4 pts) Find the equation of the vertical line passing through the point $(9, 11)$.

- A. $y = \frac{11}{9}x + 11$
- B. $y = x + 11$
- C. $y = 11$
- D. $x = 9$

Problem 24. (4 pts) Simplify completely.

$$\frac{15x^{17} - 6x^5 - 9x^2}{-3x^2}$$

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

Problem 25. (4 pts) Divide. Give the answer in scientific notation.

$$\frac{3 \times 10^9}{4 \times 10^{11}}$$

- A. 7.5×10^{-3}
- B. 0.75×10^{-2}
- C. 7.5×10^{-1}
- D. 7.5×10^{-2}