

MTH 05 Sample Final Exam, Version 1

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

$$4x - 5y = -10$$

- A. Slope = $-\frac{4}{5}$ and y-intercept = $(0, 2)$
 - B. Slope = $\frac{4}{5}$ and y-intercept = $(0, 2)$
 - C. Slope = $\frac{5}{4}$ and y-intercept = $(0, -10)$
 - D. Slope = $-\frac{5}{4}$ and y-intercept = $(0, -10)$
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Problem 2. (4 pts) Simplify.

$$\frac{40x^7(y^{-3})^3}{10x^{-1}y^{-15}}$$

- A. $\frac{x^8}{4y^{24}}$
 - B. $4x^8y^6$
 - C. $\frac{4x^6}{y^{24}}$
 - D. $4x^6y^{15}$
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Problem 3. (4 pts) Simplify completely.

$$\frac{\sqrt{2}\sqrt{70}}{\sqrt{7}}$$

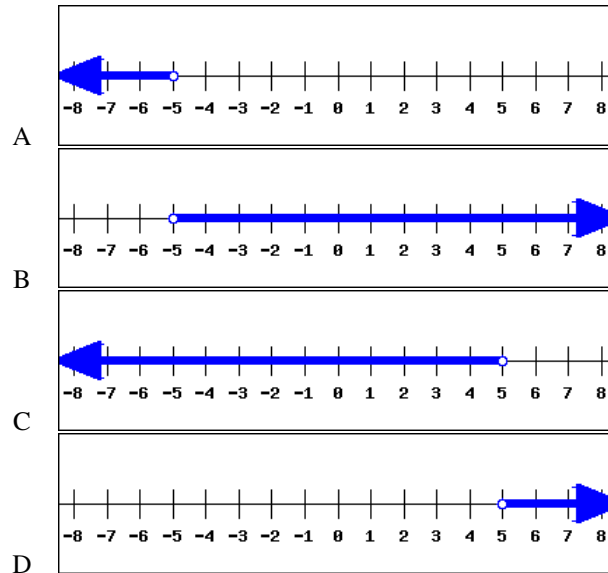
- A. $2\sqrt{5}$
 - B. $4\sqrt{5}$
 - C. $2\sqrt{10}$
 - D. $5\sqrt{2}$
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Problem 4. (4 pts) Evaluate $h(-4)$ for $h(x) = 4x^2 - 2x + 4$

- A. 60
- B. -52
- C. 52
- D. 76

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

$$2x + 4 > 6x - 16$$



Problem 6. (4 pts) Over four years the price of a car decreased from \$20000 by 55%. What is the price of the car now?

- A. \$11000
- B. \$44444
- C. \$36364
- D. \$9000

Problem 7. (4 pts) Solve for y .

$$z = 5x + 3y$$

- A. $y = \frac{z - 5x}{3}$
- B. $y = 3(z - 5x)$
- C. $y = \frac{z + 5x}{3}$
- D. $y = \frac{z}{3} - 5x$

Problem 8. (4 pts) Find all the solutions to the equation

$$3y^2 + 9y = 0$$

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

Problem 9. (4 pts) Simplify.

$$2\sqrt{10} + \sqrt{160}$$

- A. $18\sqrt{10}$
- B. $6\sqrt{10}$
- C. $20 + 10\sqrt{4}$
- D. $3\sqrt{10}$

Problem 10. (4 pts) Which of the following is a factor of the polynomial?

$$4ax + 3ay - 12bx - 9by$$

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

Problem 11. (4 pts) Find the equation of the vertical line passing through the point (8, 11).

- A. $x = 8$
- B. $y = \frac{11}{8}x + 11$
- C. $y = x + 11$
- D. $y = 11$

Problem 12. (4 pts)

Peter bought 7 toy cars for \$21.

How many cars can he buy for \$ 30?

- A. 10
- B. 14
- C. 9
- D. 13

Problem 13. (4 pts) If m represents a number, which equation is a correct translation of the sentence?

44 less than 8 times a number is 81.

- A. $8(44 - m) = 81$
- B. $44 - 8m = 81$
- C. $8(m - 44) = 81$
- D. $8m - 44 = 81$

Problem 14. (4 pts) Simplify completely.

$$\frac{6x^{15} - 8x^9 - 4x^4}{-2x^4}$$

- A. $-3x^{11} + 4x^5 + 2$
- B. $6x^{15} - 8x^9$
- C. $-3x^{11} + 4x^5$
- D. $-3x^{11} - 4x^5 - 2$

Problem 15. (4 pts) Find all the solutions to the equation.

$$3x^2 = 75$$

- A. $x = -5$ or $x = 5$
 - B. Only $x = 5$
 - C. $x = 5$ or $x = 25$
 - D. $x = 0$ or $x = 25$
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Problem 16. (4 pts) Solve the equation for x

$$19 - 3x = -2(-4 - 4x)$$

- A. $x = 0$
 - B. $x = 2$
 - C. $x = 1$
 - D. $x = -1$
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Problem 17. (4 pts) Simplify Completely.

$$(9x^2 - 17x + 8) - (-2x^2 - 3x + 4)$$

- A. $11x^2 + 20x + 4$
 - B. $11x^2 - 14x + 4$
 - C. $7x^2 - 14x + 4$
 - D. $11x^2 - 14x + 12$
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Problem 18. (4 pts) Which of the following is a factor of the polynomial?

$$6x^2 + 11x + 4$$

- A. $2x + 4$
 - B. $3x - 4$
 - C. $2x - 1$
 - D. $3x + 4$
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Problem 19. (4 pts) What is the value of the x -coordinate of the solution to the system of equations.

$$\begin{aligned} 4x + 3y &= 26 \\ -5x + 5y &= -15 \end{aligned}$$

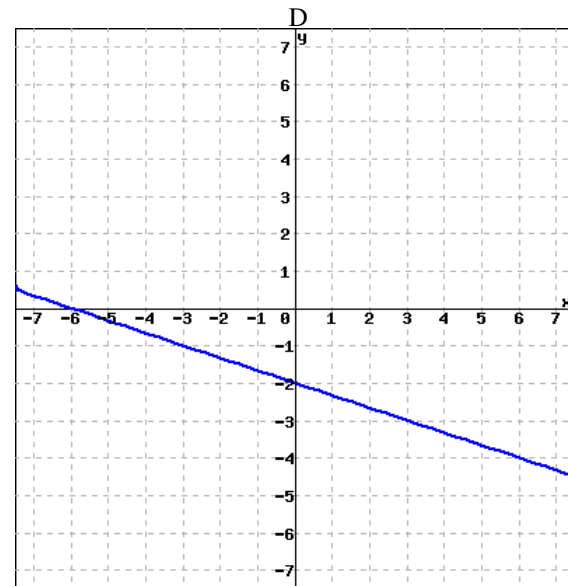
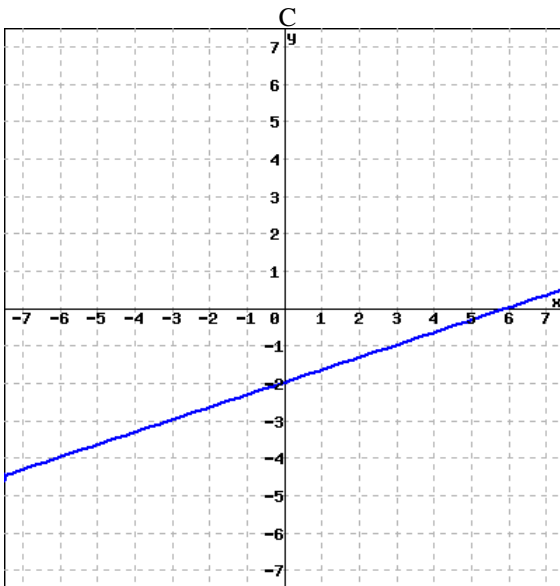
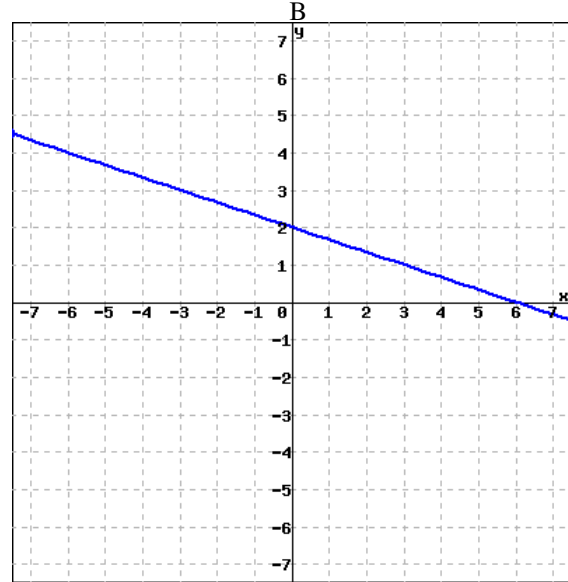
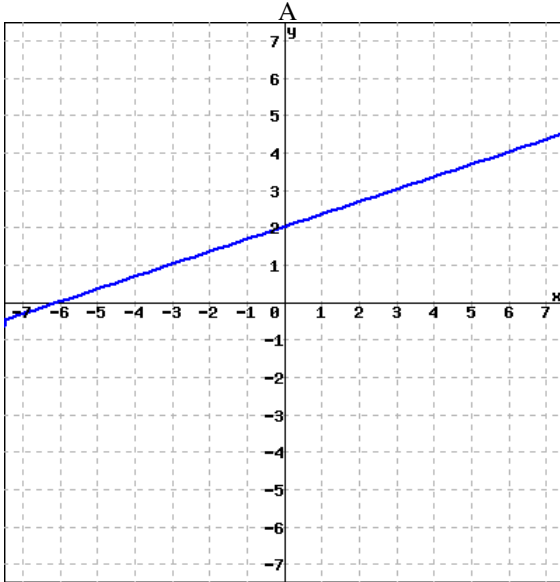
- A. $x = 5$
 - B. $x = 3$
 - C. $x = 7$
 - D. $x = 1$
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Problem 20. (4 pts) Factor completely.

$$3x^2y - 108y^3$$

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

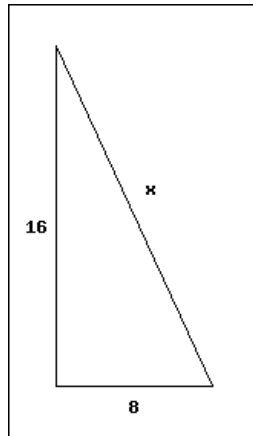
Problem 21. (4 pts) Which of the following is the graph of the equation $-2x + 6y = 12$?



Problem 22. (4 pts) Find the equation of the line passing through the points $(-6, -17)$ and $(6, 31)$. Write the equation in slope intercept form.

- A. $y = 4x + 7$
- B. $y = -4x - 41$
- C. $y = -4x + 55$
- D. $y = 4x - 17$

Problem 23. (4 pts) What is the value of x in the right triangle?



- A. $5\sqrt{8}$
- B. $2\sqrt{6}$
- C. $6\sqrt{2}$
- D. $8\sqrt{5}$

Problem 24. (4 pts) Divide. Give the answer in scientific notation.

$$\frac{7 \times 10^2}{8 \times 10^{-5}}$$

- A. 8.75×10^8
- B. 8.75×10^7
- C. 0.875×10^7
- D. 8.75×10^6

Problem 25. (4 pts) Simplify Completely.

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

- A. $2x^3 + 10x^2 - 18x + 12$
- B. $2x^3 + 2x^2 - 6x + 12$
- C. $2x^3 + 10x^2 - 6x + 12$
- D. $2x^3 + 2x^2 - 18x + 12$

Answers:

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