

MTH 05 Sample Final Exam, Version 9

Problem 1. (4 pts) Solve the equation for x

$$20 - 3x = -2(-5 + 4x)$$

- A. $x = 0$
- B. $x = -1$
- C. $x = -2$
- D. $x = -3$

Problem 2. (4 pts) Factor completely.

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

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

Problem 3. (4 pts) Find the slope and y-intercept for the graph of the equation.

$$6x - 7y = -14$$

- A. Slope = $-\frac{7}{6}$ and y-intercept = $(0, -14)$
- B. Slope = $-\frac{6}{7}$ and y-intercept = $(0, 2)$
- C. Slope = $\frac{7}{6}$ and y-intercept = $(0, -14)$
- D. Slope = $\frac{6}{7}$ and y-intercept = $(0, 2)$

Problem 4. (4 pts) Find the equation of the line passing through the points $(-4, 3)$ and $(6, -17)$. Write the equation in slope intercept form.

- A. $y = 2x - 29$
- B. $y = 2x + 11$
- C. $y = -2x + 3$
- D. $y = -2x - 5$

Problem 5. (4 pts) Solve for y .

$$z = 9x + 8y$$

- A. $y = \frac{z + 9x}{8}$
- B. $y = \frac{z}{8} - 9x$
- C. $y = 8(z - 9x)$
- D. $y = \frac{z - 9x}{8}$

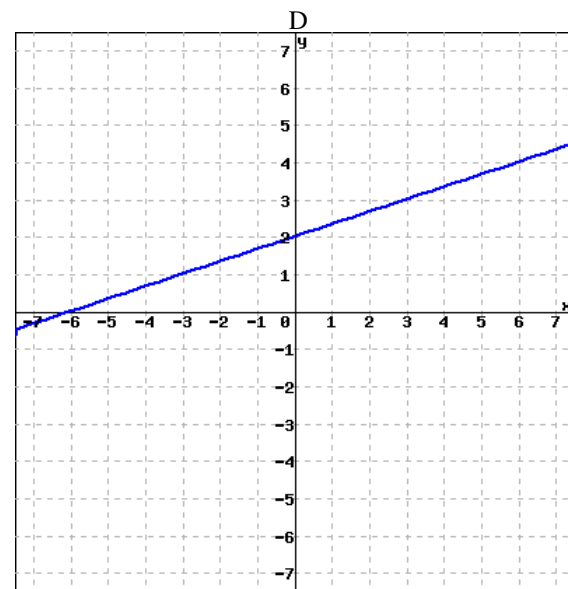
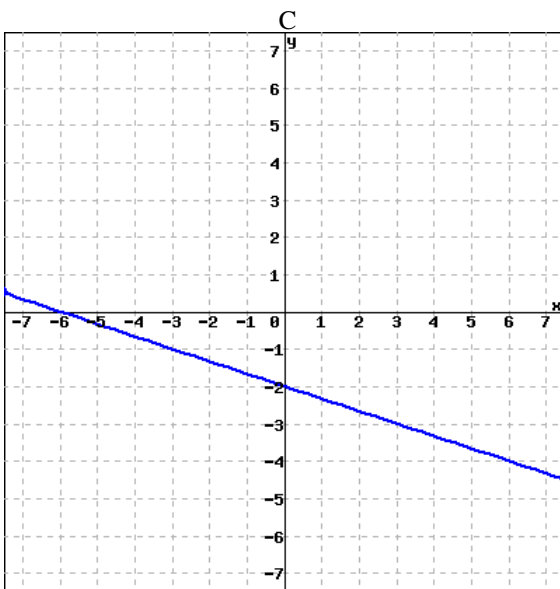
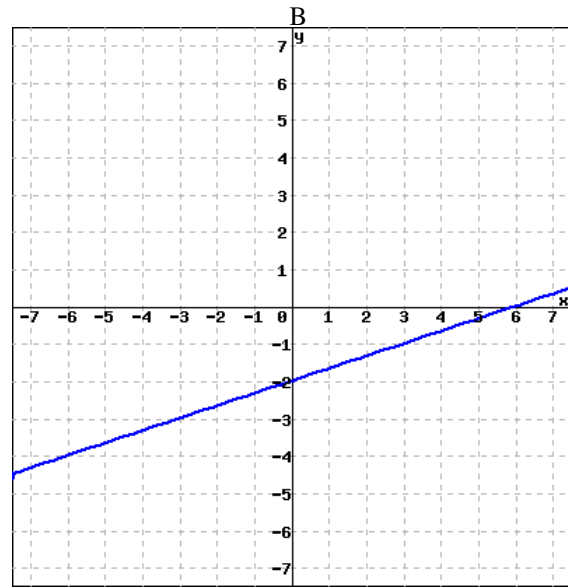
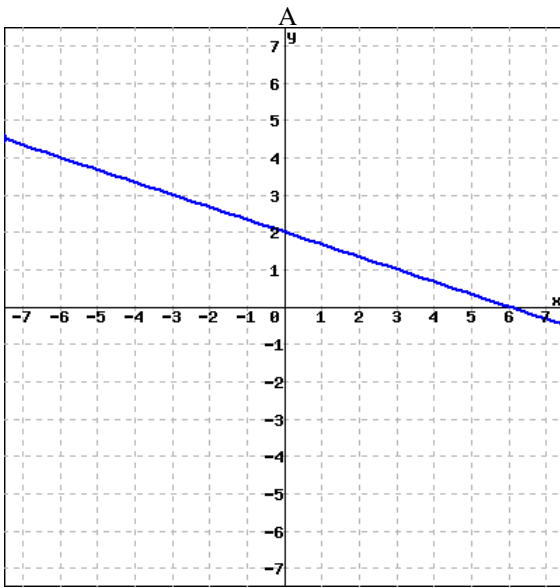
Problem 6. (4 pts)

Mark bought 6 vintage stamps for \$72.

How much do 8 stamps cost?

- A. \$80
- B. \$96
- C. \$48
- D. \$70

Problem 7. (4 pts) Which of the following is the graph of the equation $3x - 9y = 18$?



Problem 8. (4 pts) Simplify Completely.

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

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

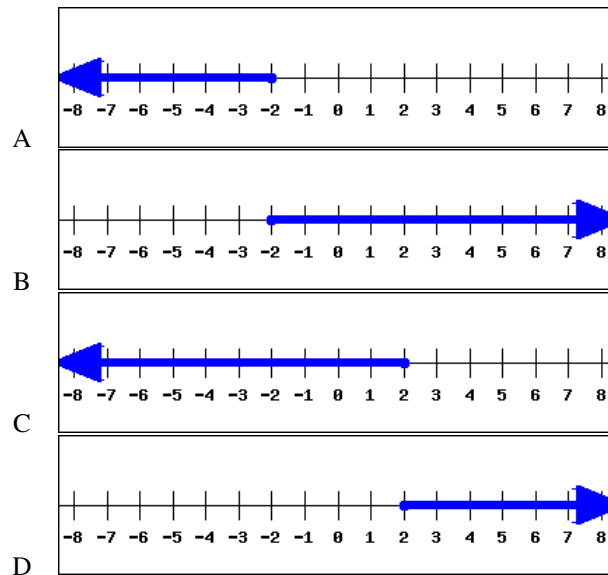
Problem 9. (4 pts) Simplify completely.

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

- A. $-5x^{15} + 3x^4$
- B. $15x^{17} - 9x^6$
- C. $-5x^{15} + 3x^4 + 2$
- D. $-5x^{15} - 3x^4 - 2$

Problem 10. (4 pts) Find the graph of the solution to the inequality.

$$2x - 9 \geq 7x + 1$$



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

$$4z^2 = 144$$

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

Problem 12. (4 pts) Find all the solutions to the equation

$$-3y^2 - 15y = 0$$

- A. $y = 0$ or $y = 5$
- B. Only $y = -5$
- C. Only $y = 5$
- D. $y = 0$ or $y = -5$

Problem 13. (4 pts) Over four years the price of a car decreased to \$7500, which is 30% of the original price. What was the original price of the car?

- A. \$5250
- B. \$25000
- C. \$2250
- D. \$10714

Problem 14. (4 pts) Find the equation of the vertical line passing through the point $(10, 1)$.

- A. $y = \frac{1}{10}x + 1$
- B. $x = 10$
- C. $y = 1$
- D. $y = x + 1$

Problem 15. (4 pts) Simplify.

$$7\sqrt{5} + 4\sqrt{180}$$

- A. $35 + 20\sqrt{6}$
- B. $151\sqrt{5}$
- C. $11\sqrt{5}$
- D. $31\sqrt{5}$

Problem 16. (4 pts) Which of the following is a factor of the polynomial?

$$15ax - 10ay + 27bx - 18by$$

- A. $3x + 2y$
- B. $5a + 9b$
- C. $5x + 9y$
- D. $5a - 9b$

Problem 17. (4 pts) Simplify completely.

$$\frac{\sqrt{2}\sqrt{98}}{\sqrt{7}}$$

- A. $4\sqrt{7}$
- B. $2\sqrt{7}$
- C. $2\sqrt{14}$
- D. $7\sqrt{2}$

Problem 18. (4 pts) Simplify.

$$\frac{12x^8(y^3)^5}{3x^{-7}y^{-36}}$$

- A. $4xy^{44}$
- B. $\frac{4x}{y^{21}}$
- C. $\frac{x^{15}}{4y^{21}}$
- D. $4x^{15}y^{51}$

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

$$3x^2 + x - 10$$

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

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

$$(5 \times 10^{-6})(8 \times 10^{-6})$$

- A. 40×10^{-12}
- B. 4.0×10^{-11}
- C. 4.0×10^{-12}
- D. 4.0×10^{-13}

Problem 21. (4 pts) What is the value of the x -coordinate of the solution to the system of equations.

$$\begin{aligned} -3x + y &= -4 \\ 4x + 2y &= -8 \end{aligned}$$

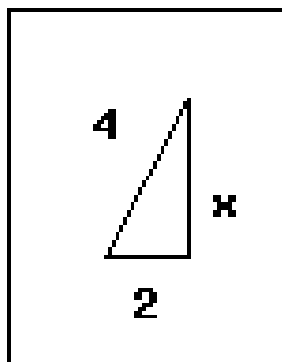
- A. $x = 0$
- B. $x = -2$
- C. $x = 1$
- D. $x = -1$

Problem 22. (4 pts) Simplify Completely.

$$(12x^2 - 9x + 19) - (-3x^2 - 4x + 5)$$

- A. $15x^2 - 5x + 24$
- B. $9x^2 - 5x + 14$
- C. $15x^2 + 13x + 14$
- D. $15x^2 - 5x + 14$

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



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

Problem 24. (4 pts) Evaluate $h(-4)$ for $h(x) = 4x^2 - 4x + 2$

- A. 46
- B. -46
- C. 50
- D. 82

Problem 25. (4 pts) If x represents a number, which equation is a correct translation of the sentence?

89 is 88 subtracted from 2 times a number.

- A. $89 = 2x - 88$
- B. $89 = 88 - 2x$
- C. $89 = 2(88 - x)$
- D. $89 = 2(x - 88)$