MTH 05 Sample Final Exam, Version 10

Problem 1. (4 pts) Solve for x.

$$z = 5x + 9y$$

- A. $x = \dfrac{z}{5} - 9y$
- B. $x = \dfrac{z + 9y}{5}$
- C. $x = \dfrac{z - 9y}{5}$
- D. $x = 5(z - 9y)$

Problem 2. (4 pts)
John bought 3 books for $39.
How many books can John buy for $ 130?

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

Problem 3. (4 pts) Simplify completely.

$$\frac{-6x^{14} - 15x^4 + 9x^2}{-3x^2}$$

- A. $2x^{12} + 5x^2$
- B. $2x^{12} - 5x^2 + 3$
- C. $2x^{12} + 5x^2 - 3$
- D. $-6x^{14} - 15x^4$

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

$$2y^2 + 10y = 0$$

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

Problem 5. (4 pts) What is the value of the x-coordinate of the solution to the system of equations.

$$\begin{aligned} x - y &= 0 \\ -3x + y &= 4 \end{aligned}$$

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

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

$$5ax - 4ay + 5bx - 4by$$

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

Problem 7. (4 pts) Find the slope and y-intercept for the graph of the equation.

$$7x - 10y = -60$$

- A. Slope $= \frac{10}{7}$ and y-intercept $= (0, -60)$
- B. Slope $= \frac{7}{10}$ and y-intercept $= (0, 6)$
- C. Slope $= -\frac{10}{7}$ and y-intercept $= (0, -60)$
- D. Slope $= -\frac{7}{10}$ and y-intercept $= (0, 6)$

Problem 8. (4 pts) Evaluate $h(-6)$ for $h(x) = -3x^2 - x - 2$

- A. -112
- B. 112
- C. -104
- D. 116

Problem 9. (4 pts) Find all the solutions to the equation.

$$-2z^2 = -162$$

- A. *Only* $z = 9$
- B. $z = -9$ *or* $z = 9$
- C. $z = 9$ *or* $z = 81$
- D. $z = 0$ *or* $z = 81$

Problem 10. (4 pts) Simplify.

$$\frac{46x^4(y^{-6})^2}{2x^{-3}y^{-18}}$$

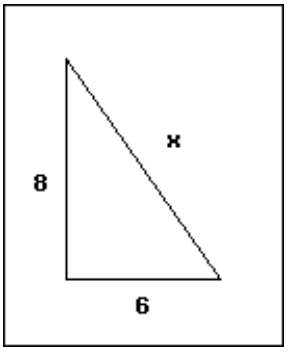
- A. $\frac{x^7}{23y^{30}}$
- B. $23xy^{14}$
- C. $\frac{23x}{y^{30}}$
- D. $23x^7y^6$

Problem 11. (4 pts) Factor completely.

$$2x^3 - 50xy^2$$

- A. $2\left(x^3 - 25xy^2\right)$
- B. $2x(x-5y)^2$
- C. $2x(x-5y)(x+5y)$
- D. $2x\left(x^2 - 25y^2\right)$

Problem 12. (4 pts) What is the value of x in the right triangle?



- A. $\sqrt{14}$
- B. 14
- C. $\sqrt{10}$
- D. 10

Problem 13. (4 pts) Find the equation of the vertical line passing through the point $(6,2)$.

- A. $y = \frac{1}{3}x + 2$
- B. $y = 2$
- C. $y = x + 2$
- D. $x = 6$

Problem 14. (4 pts) Over four years the price of a car decreased to \$16500, which is 55% of the original price. What was the original price of the car?

- A. \$9075
- B. \$30000
- C. \$36667
- D. \$7425

Problem 15. (4 pts) Solve the equation for x

$$21 + 3x = 2(3 + 3x)$$

- A. $x = 9$
- B. $x = 5$
- C. $x = 3$
- D. $x = 7$

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

$$3x^2 + 20x + 33$$

- A. $x + 11$
- B. $3x - 11$
- C. $3x + 11$
- D. $x - 3$

Problem 17. (4 pts) If x represents a number, which equation is a correct translation of the sentence?

66 **is** 83 **subtracted from** 6 **times a number.**

- A. $66 = 6x - 83$
- B. $66 = 83 - 6x$
- C. $66 = 6(x - 83)$
- D. $66 = 6(83 - x)$

Problem 18. (4 pts) Simplify Completely.

$$(6x - 2)(x^2 - 3x + 3)$$

- A. $6x^3 - 16x^2 + 24x - 6$
- B. $6x^3 - 20x^2 + 18x - 6$
- C. $6x^3 - 20x^2 + 24x - 6$
- D. $6x^3 - 16x^2 + 18x - 6$

Problem 19. (4 pts) Simplify completely.

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

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

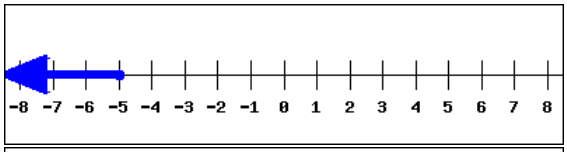
Problem 20. (4 pts) Find the equation of the line passing through the points $(-2, 3)$ and $(3, -7)$. Write the equation in slope intercept form.

- A. $y = -2x + 3$
- B. $y = 2x + 7$
- C. $y = 2x - 13$
- D. $y = -2x - 1$

Problem 21. (4 pts) Find the graph of the solution to the inequality.

$$-x+4 \leq 8x-41$$

A



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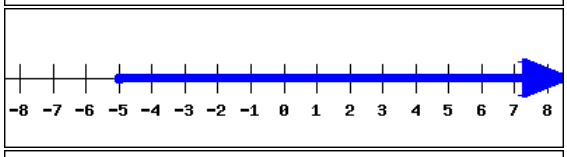

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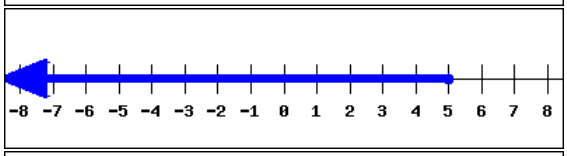

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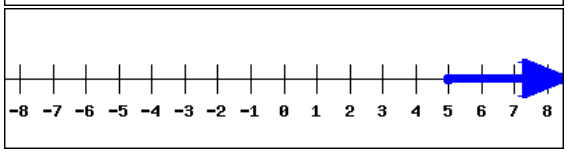


Problem 22. (4 pts) Simplify Completely.

$$(7x^2-19x+16)-(-10x^2-5x+6)$$

- A. $17x^2-14x+10$
- B. $17x^2+24x+10$
- C. $-3x^2-14x+10$
- D. $17x^2-14x+22$

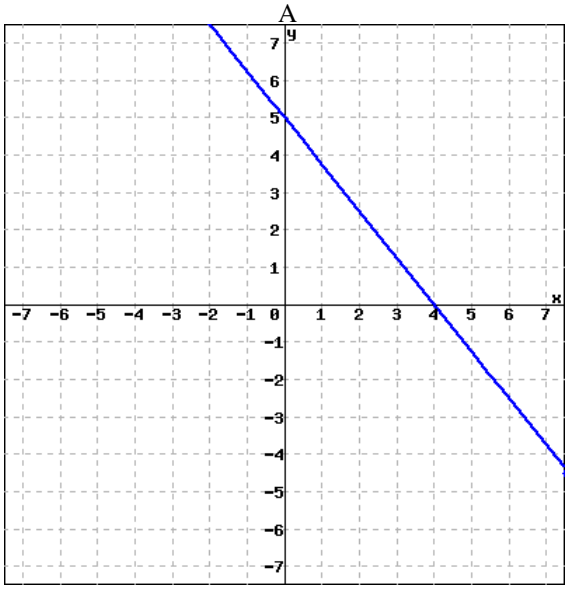
Problem 23. (4 pts) Divide. Give the answer in scientific notation.

$$\frac{3\times 10^{-8}}{8\times 10^{4}}$$

- A. 3.75×10^{-11}
- B. 0.375×10^{-12}
- C. 3.75×10^{-13}
- D. 3.75×10^{-12}

Problem 24. (4 pts) Which of the following is the graph of the equation $-5x+4y=20$?

A



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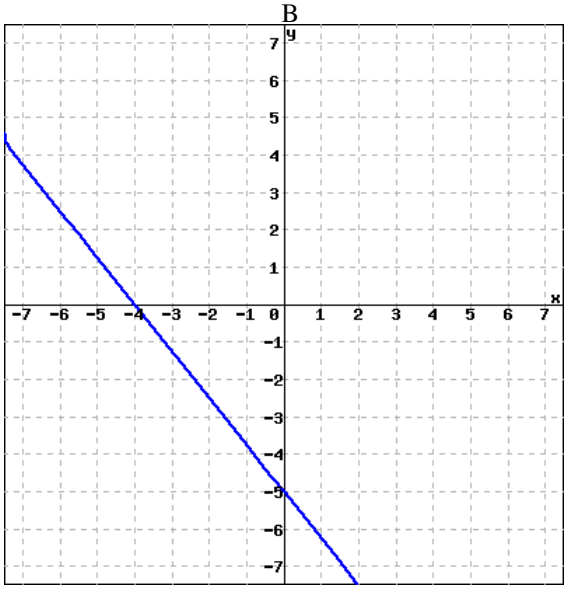

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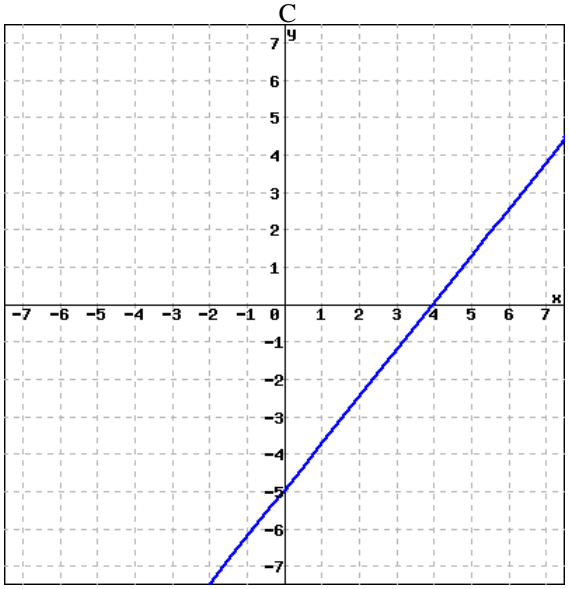

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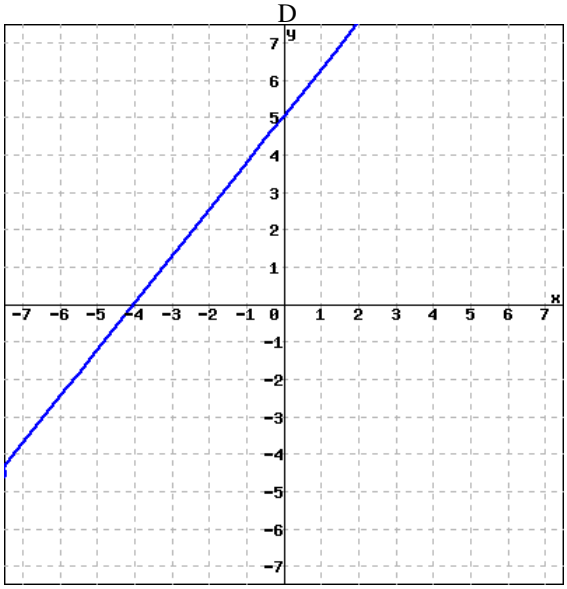

Problem 25. (4 pts) Simplify.

$$8\sqrt{5}\ -4\sqrt{80}$$

- A. $8\sqrt{5}$
- B. $-56\sqrt{5}$
- C. $40-20\sqrt{4}$
- D. $-8\sqrt{5}$