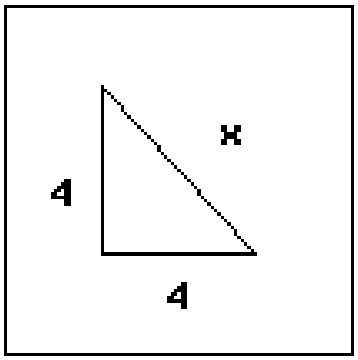
MTH 05 Sample Final Exam, Version 7

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



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

Problem 2. (4 pts) Find all the solutions to the equation

$$3y^2 + 18y = 0$$

- A. y = 0 or y = 6
- B. Only y = 6
- C. Only y = -6
- D. y = 0 or y = -6

Problem 3. (4 pts) Evaluate $h(-7)$ for $h(x) = 2x^2 + 4x - 7$

- A. -133
- B. 119
- C. 63
- D. 133

Problem 4. (4 pts) Simplify Completely.

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

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

Problem 5. (4 pts) Solve the equation for x

$$32+2x=-2(-4-3x)$$

- A. $x=10$
- B. $x=4$
- C. $x=6$
- D. $x=8$

Problem 6. (4 pts)
Peter bought 4 toy cars for $36.
How many cars can he buy for $ 27?

- A. 1
- B. 2
- C. 6
- D. 3

Problem 7. (4 pts) Simplify.

$$8\sqrt{108}\ +\sqrt{75}$$

- A. $53\sqrt{3}$
- B. $24\sqrt{6}+3\sqrt{5}$
- C. $313\sqrt{3}$
- D. $49\sqrt{3}$

Problem 8. (4 pts) Simplify.

$$\frac{36x^8(y^{-4})^3}{4x^{-2}y^{-26}}$$

- A. $\dfrac{x^{10}}{9y^{38}}$
- B. $9x^{10}y^{14}$
- C. $\dfrac{9x^6}{y^{38}}$
- D. $9x^6y^{25}$

Problem 9. (4 pts) Find the slope and y-intercept for the graph of the equation.

$$6x-10y=-50$$

- A. Slope $=\ \dfrac{5}{3}$ and y-intercept $=(0,-50)$
- B. Slope $=\ -\dfrac{3}{5}$ and y-intercept $=(0,5)$
- C. Slope $=\ -\dfrac{5}{3}$ and y-intercept $=(0,-50)$
- D. Slope $=\ \dfrac{3}{5}$ and y-intercept $=(0,5)$

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

$$-3x^2 = -147$$

- A. $x = 7$ *or* $x = 49$
- B. $x = -7$ *or* $x = 7$
- C. *Only* $x = 7$
- D. $x = 0$ *or* $x = 49$

Problem 11. (4 pts) Over four years the price of a car decreased to \$9000, which is 25% of the original price. What was the original price of the car?

- A. \$6750
- B. \$36000
- C. \$12000
- D. \$2250

Problem 12. (4 pts) What is the value of the y-coordinate of the solution to the system of equations.

$$\begin{aligned} -x + 4y &= -10 \\ 4x + 2y &= 4 \end{aligned}$$

- A. $y = -2$
- B. $y = -4$
- C. $y = -6$
- D. $y = 0$

Problem 13. (4 pts) Simplify completely.

$$\frac{\sqrt{6}\sqrt{84}}{\sqrt{7}}$$

- A. $6\sqrt{12}$
- B. $36\sqrt{2}$
- C. $2\sqrt{6}$
- D. $6\sqrt{2}$

Problem 14. (4 pts) Simplify completely.

$$\frac{-6x^{11} - 4x^7 + 8x^2}{-2x^2}$$

- A. $3x^9 + 2x^5 - 4$
- B. $3x^9 + 2x^5$
- C. $-6x^{11} - 4x^7$
- D. $3x^9 - 2x^5 + 4$

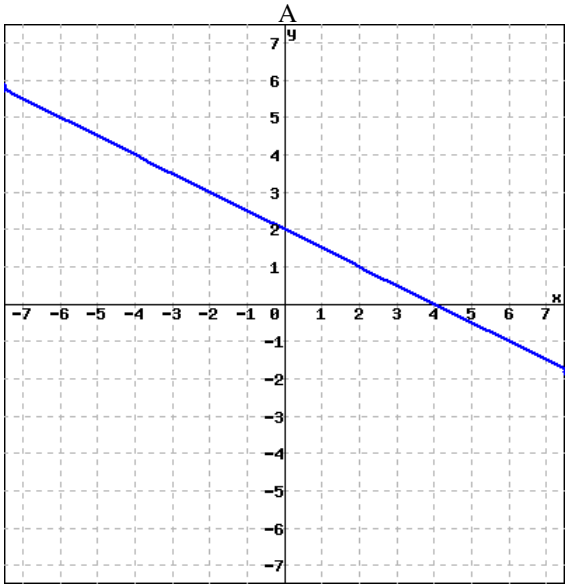
Problem 15. (4 pts) Which of the following is a factor of the polynomial?

$$15ax - 6ay - 20bx + 8by$$

- A. $3x - 4y$
- B. $5x - 2y$
- C. $5x + 2y$
- D. $3a + 4b$

Problem 16. (4 pts) Which of the following is the graph of the equation $2x - 4y = 8$?

A



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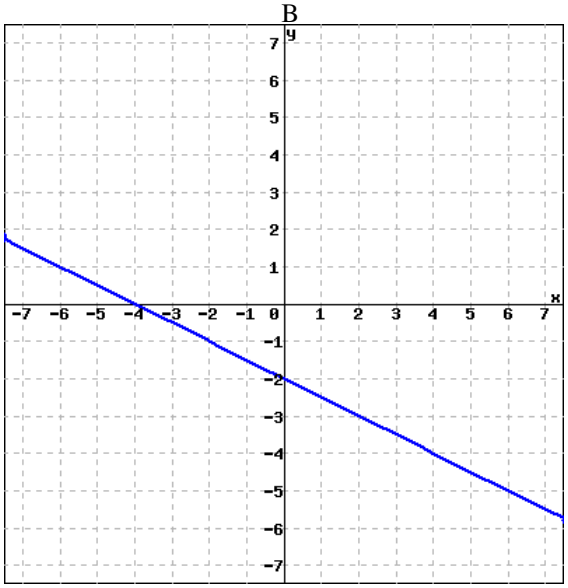

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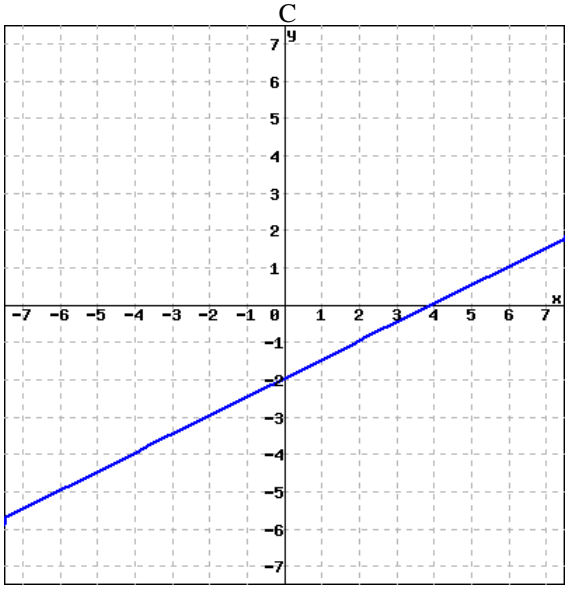

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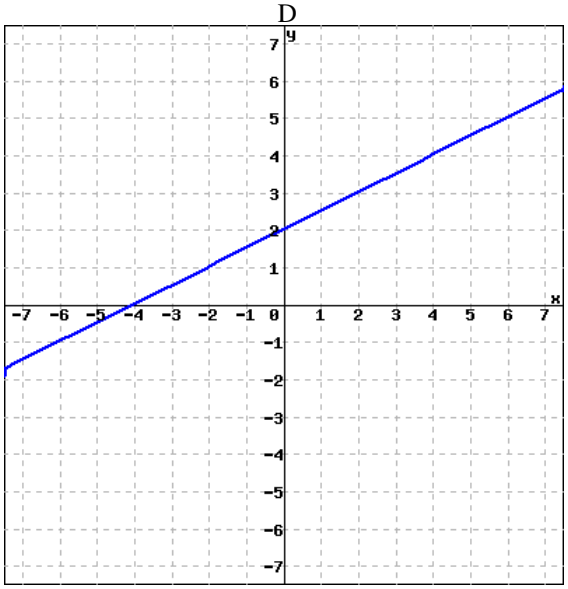


Problem 17. (4 pts) Simplify Completely.

$$(4x^2 - 18x + 14) - (-2x^2 - 4x + 4)$$

- A. $2x^2 - 14x + 10$
- B. $6x^2 - 14x + 10$
- C. $6x^2 + 22x + 10$
- D. $6x^2 - 14x + 18$

Problem 18. (4 pts) Find the equation of the horizontal line passing through the point $(-9, 13)$.

- A. $y = x + 13$
- B. $x = -9$
- C. $y = 13$
- D. $y = -\frac{13}{9}x + 13$

Problem 19. (4 pts) Find the equation of the line passing through the points $(-5, -21)$ and $(3, 3)$. Write the equation in slope intercept form.

- A. $y = -3x + 12$
- B. $y = -3x - 36$
- C. $y = 3x - 21$
- D. $y = 3x - 6$

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

$$(6 \times 10^{-2})(7 \times 10^{-4})$$

- A. 4.2×10^{-5}
- B. 42×10^{-6}
- C. 4.2×10^{-7}
- D. 4.2×10^{-6}

Problem 21. (4 pts) If k represents a number, which equation is a correct translation of the sentence?

80 **subtracted from** 5 **times a number is** 69**.**

- A. $80 - 5k = 69$
- B. $5(k - 80) = 69$
- C. $5(80 - k) = 69$
- D. $5k - 80 = 69$

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

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

- A. $x + 1$
- B. $3x - 1$
- C. $3x - 4$
- D. $x - 1$

Problem 23. (4 pts) Solve for x.

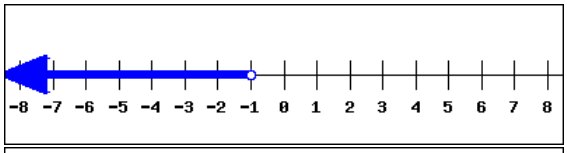
$$z = 4x + 6y$$

- A. $x = 4(z - 6y)$
- B. $x = \dfrac{z + 6y}{4}$
- C. $x = \dfrac{z}{4} - 6y$
- D. $x = \dfrac{z - 6y}{4}$

Problem 24. (4 pts) Find the graph of the solution to the inequality.

$$-9x + 4 > 5x + 18$$

A



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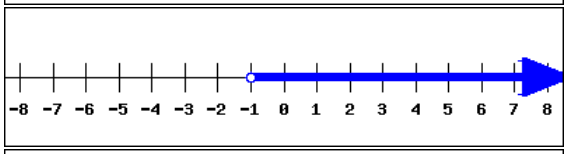

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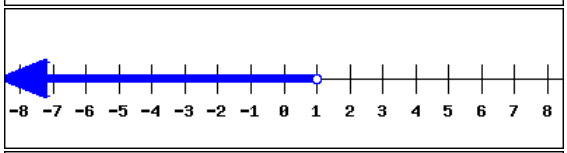

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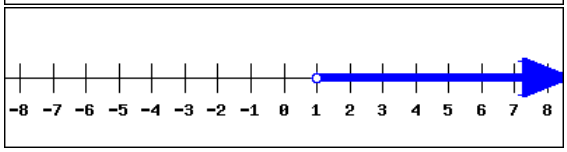

Problem 25. (4 pts) Factor completely.

$$180x^2y - 5y^3$$

- A. $5y\left(36x^2 - y^2\right)$
- B. $5y(6x - y)(6x + y)$
- C. $5y(6x - y)^2$
- D. $5\left(36x^2y - y^3\right)$

Answers:

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