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)

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. \(4x^6y^{15}\)

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. \(5\sqrt{2}\)

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.

\[ 2x + 4 > 6x - 16 \]

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

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

\[ \text{Problem 7. (4 pts) Solve for } y. \]

\[ z = 5x + 3y \]

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

\[ \text{Problem 8. (4 pts) Find all the solutions to the equation} \]

\[ 3y^2 + 9y = 0 \]

- 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. \(x = -5 \text{ or } x = 5\)
- B. \(\text{Only } x = 5\)
- C. \(x = 5 \text{ or } x = 25\)
- D. \(x = 0 \text{ or } x = 25\)

Problem 16. (4 pts) Solve the equation for \(x\)

\[19 - 3x = -2(-4 - 4x)\]

- A. \(x = 0\)
- B. \(x = 2\)
- C. \(x = 1\)
- D. \(x = -1\)

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. \(11x^2 - 14x + 12\)

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. \(3x + 4\)

Problem 19. (4 pts) What is the value of the \(x\)-coordinate of the solution to the system of equations.

\[
\begin{align*}
4x + 3y &= 26 \\
-5x + 5y &= -15
\end{align*}
\]

- A. \(x = 5\)
- B. \(x = 3\)
- C. \(x = 7\)
- D. \(x = 1\)

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 \(-2x + 6y = 12\)?

- A
- B
- C
- D

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?

\[
\text{Diagram of a right triangle with sides 8 and 16, and \( x \) as the hypotenuse.}
\]

- 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.

\[
\frac{7 \times 10^2}{8 \times 10^{-3}}
\]

- A. \( 8.75 \times 10^8 \)
- B. \( 8.75 \times 10^7 \)
- C. \( 0.875 \times 10^7 \)
- D. \( 8.75 \times 10^6 \)

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