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

\[-9x - 7y = -28\]

- A. Slope = \(-\frac{9}{7}\) and y-intercept = (0, 4)
- B. Slope = \(\frac{9}{7}\) and y-intercept = (0, 4)
- C. Slope = \(\frac{7}{9}\) and y-intercept = (0, -28)
- D. Slope = \(-\frac{7}{9}\) and y-intercept = (0, -28)

Problem 2. (4 pts) Simplify.

\[\sqrt{45} + 3\sqrt{80}\]

- A. \(5\sqrt{3} + 15\sqrt{4}\)
- B. \(15\sqrt{5}\)
- C. \(57\sqrt{5}\)
- D. \(6\sqrt{5}\)

Problem 3. (4 pts) Simplify Completely.

\[(5x - 4)(x^2 - 2x + 2)\]

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

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

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

- A. Only \(y = 1\)
- B. Only \(y = -1\)
- C. \(y = 0\) or \(y = -1\)
- D. \(y = 0\) or \(y = 1\)
Problem 5. (4 pts) Which of the following is the graph of the equation $4x - 2y = -8$?

A  B  C  D

Problem 6. (4 pts) If $n$ represents a number, which equation is a correct translation of the sentence?

46 is 83 less than 6 times a number.

- A. $46 = 6(n - 83)$
- B. $46 = 83 - 6n$
- C. $46 = 6n - 83$
- D. $46 = 6(83 - n)$
Problem 7. (4 pts) Which of the following is a factor of the polynomial?

\[ 2cx - 5cy - 6dx + 15dy \]

- A. \( c + 3d \)
- B. \( 2x + 5y \)
- C. \( 2x - 5y \)
- D. \( x - 3y \)

Problem 8. (4 pts) Factor completely.

\[ 6x^2y - 96y^3 \]

- A. \( 6y(x^2 - 16y^2) \)
- B. \( 6y(x - 4y)^2 \)
- C. \( 6(x^2y - 16y^3) \)
- D. \( 6y(x - 4y)(x + 4y) \)

Problem 9. (4 pts) Find the equation of the line passing through the points \((-4, 13)\) and \((6, -7)\). Write the equation in slope intercept form.

- A. \( y = -2x + 13 \)
- B. \( y = -2x + 5 \)
- C. \( y = 2x - 19 \)
- D. \( y = 2x + 21 \)

Problem 10. (4 pts) Solve for \( x \).

\[ z = 9x + 3y \]

- A. \( x = \frac{z}{9} - 3y \)
- B. \( x = \frac{z - 3y}{9} \)
- C. \( x = \frac{9}{z - 3y} \)
- D. \( x = \frac{9 + 3y}{9} \)

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

\[ 5y^2 = 45 \]

- A. \( y = 0 \) or \( y = 9 \)
- B. \( y = -3 \) or \( y = 3 \)
- C. \( y = 3 \) or \( y = 9 \)
- D. Only \( y = 3 \)

Problem 12. (4 pts) Evaluate \( h(-7) \) for \( h(x) = x^2 - 2x + 4 \)

- A. 67
- B. 39
- C. -31
- D. 31
Problem 13. (4 pts) What is the value of the \( y \)-coordinate of the solution to the system of equations.

\[
\begin{align*}
-4x + 4y &= 4 \\
3x + y &= 9
\end{align*}
\]

- A. \( y = 3 \)
- B. \( y = 1 \)
- C. \( y = 4 \)
- D. \( y = 2 \)

Problem 14. (4 pts) Find the graph of the solution to the inequality.

\[-8x + 5 \leq x + 23\]

Problem 15. (4 pts) Simplify completely.

\[
\frac{\sqrt{2}\sqrt{36}}{\sqrt{6}}
\]

- A. \( 2\sqrt{6} \)
- B. \( 2\sqrt{3} \)
- C. \( 3\sqrt{2} \)
- D. \( 4\sqrt{3} \)

Problem 16. (4 pts) Over four years the price of a car decreased to $19500, which is 65% of the original price. What was the original price of the car?

- A. $30000
- B. $55714
- C. $6825
- D. $12675
Problem 17. (4 pts) Simplify Completely. \((17x^2 - 19x + 15) - (-4x^2 - 2x + 5)\)

- A. \(13x^2 - 17x + 10\)
- B. \(21x^2 + 21x + 10\)
- C. \(21x^2 - 17x + 20\)
- D. \(21x^2 - 17x + 10\)

Problem 18. (4 pts) Solve the equation for \(x\)

\[-28 + 3x = -2(-4 + 3x)\]

- A. \(x = 5\)
- B. \(x = 6\)
- C. \(x = 3\)
- D. \(x = 4\)

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

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

- A. \(x + 2\)
- B. \(2x + 7\)
- C. \(x - 2\)
- D. \(2x - 2\)

Problem 20. (4 pts) Simplify.

\[\frac{18x^8(y^{-3})^5}{2x^{-7}y^{-21}}\]

- A. \(\frac{x^{15}}{9y^{36}}\)
- B. \(\frac{9x}{y^{36}}\)
- C. \(9x^{15}y^{6}\)
- D. \(9xy^{23}\)

Problem 21. (4 pts)
Peter bought 3 toy cars for $99. How much do 10 cars cost?

- A. $109
- B. $330
- C. $92
- D. $30
Problem 22. (4 pts) What is the value of x in the right triangle?

\[5\sqrt{13}\]

\[13\sqrt{5}\]

5

\[\sqrt{5}\]

Problem 23. (4 pts) Find the equation of the vertical line passing through the point (9, 11).

\[y = \frac{11}{9}x + 11\]

\[y = x + 11\]

\[y = 11\]

\[x = 9\]

Problem 24. (4 pts) Simplify completely.

\[
\frac{15x^{17} - 6x^5 - 9x^2}{-3x^2}
\]

\[15x^{17} - 6x^5\]

\[-5x^{15} + 2x^3\]

\[-5x^{15} + 2x^3 + 3\]

\[-5x^{15} - 2x^3 - 3\]

Problem 25. (4 pts) Divide. Give the answer in scientific notation.

\[
\frac{3 \times 10^9}{4 \times 10^{11}}
\]

\[7.5 \times 10^{-3}\]

\[0.75 \times 10^{-2}\]

\[7.5 \times 10^{-1}\]

\[7.5 \times 10^{-2}\]
Answers:

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