Problem 1. (4 pts) Which of the following is the graph of the equation 

\[-4x + 6y = 24\]
Problem 2. (4 pts) Which of the following is a factor of the polynomial?

\[ 3cw + 6cz - 2dw - 4dz \]

- A. \(3w - 2z\)
- B. \(w + 2z\)
- C. \(w - 2z\)
- D. \(3c + 2d\)

Problem 3. (4 pts) Which of the following is a factor of the polynomial?

\[ 3x^2 + 26x - 9 \]

- A. \(x - 9\)
- B. \(3x + 9\)
- C. \(3x + 1\)
- D. \(x + 9\)

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

\[
\begin{align*}
-2x - y &= -3 \\
-5x + 3y &= -2
\end{align*}
\]

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

Problem 5. (4 pts) What is the value of \(x\) in the right triangle?

- A. 6
- B. \(\sqrt{12}\)
- C. 12
- D. \(\sqrt{6}\)
Problem 6. (4 pts)
Peter bought 4 toy cars for $76.
How many cars can he buy for $171?

- A. 8
- B. 13
- C. 9
- D. 12

Problem 7. (4 pts) Simplify Completely.
\[(4x - 5)(x^2 - 2x - 3)\]

- A. \(4x^3 - 3x^2 - 2x + 15\)
- B. \(4x^3 - 13x^2 - 12x + 15\)
- C. \(4x^3 - 13x^2 - 2x + 15\)
- D. \(4x^3 - 3x^2 - 12x + 15\)

Problem 8. (4 pts) Find the equation of the horizontal line passing through the point \((4, -10)\).

- A. \(x = 4\)
- B. \(y = -10\)
- C. \(y = x - 10\)
- D. \(y = -\frac{5}{2}x - 10\)

Problem 9. (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 10. (4 pts) Simplify.
\[8\sqrt{5} - 5\sqrt{125}\]

- A. \(40 - 25\sqrt{5}\)
- B. \(17\sqrt{5}\)
- C. \(-17\sqrt{5}\)
- D. \(-117\sqrt{5}\)

Problem 11. (4 pts) Over four years the price of a car decreased from $20000 by 70%. What is the price of the car now?

- A. $28571
- B. $6000
- C. $14000
- D. $66667
Problem 12. (4 pts) Find the graph of the solution to the inequality.

\[-3x - 9 < x + 3\]

Problem 13. (4 pts) Find all the solutions to the equation

\[2y^2 + 12y = 0\]

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

Problem 14. (4 pts) Solve for \(x\).

\[z = 9x + 5y\]

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

Problem 15. (4 pts) Factor completely.

\[32x^3 - 18xy^2\]

- A. \(2x(4x - 3y)(4x + 3y)\)
- B. \(2x(16x^2 - 9y^2)\)
- C. \(2(16x^3 - 9xy^2)\)
- D. \(2x(4x - 3y)^2\)
Problem 16. (4 pts) Find the slope and y-intercept for the graph of the equation.

\[5x - 3y = -18\]

- A. Slope = \(\frac{3}{5}\) and y-intercept = (0, -18)
- B. Slope = \(-\frac{5}{3}\) and y-intercept = (0, 6)
- C. Slope = \(-\frac{3}{5}\) and y-intercept = (0, -18)
- D. Slope = \(\frac{5}{3}\) and y-intercept = (0, 6)

Problem 17. (4 pts) Find all the solutions to the equation.

\[2y^2 = 8\]

- A. \(y = 0\) or \(y = 4\)
- B. \(y = -2\) or \(y = 2\)
- C. \(Only\ y = 2\)
- D. \(y = 2\) or \(y = 4\)

Problem 18. (4 pts) Multiply. Give the answer in scientific notation.

\[(3 \times 10^5)(5 \times 10^9)\]

- A. \(1.5 \times 10^{13}\)
- B. \(15 \times 10^{14}\)
- C. \(1.5 \times 10^{15}\)
- D. \(1.5 \times 10^{14}\)

Problem 19. (4 pts) Evaluate \(h(-5)\) for \(h(x) = -2x^2 - x - 12\)

- A. -43
- B. 43
- C. 67
- D. -57

Problem 20. (4 pts) If \(n\) represents a number, which equation is a correct translation of the sentence?

49 subtracted from 7 times a number is 11.

- A. \(49 - 7n = 11\)
- B. \(7n - 49 = 11\)
- C. \(7(49 - n) = 11\)
- D. \(7(n - 49) = 11\)

Problem 21. (4 pts) Simplify Completely.

\[(12x^2 - 10x + 11) - (-6x^2 - 4x + 2)\]

- A. \(18x^2 - 6x + 9\)
- B. \(18x^2 - 6x + 13\)
- C. \(18x^2 + 14x + 9\)
- D. \(6x^2 - 6x + 9\)
Problem 22. (4 pts) Simplify completely.

\[
\frac{\sqrt{3} \sqrt{30}}{\sqrt{5}}
\]

• A. 2√3
• B. 9√2
• C. 3√2
• D. 3√6

Problem 23. (4 pts) Find the equation of the line passing through the points \((-1, -2)\) and \((5, -14)\). Write the equation in slope intercept form.

• A. \(y = 2x + 0\)
• B. \(y = -2x - 2\)
• C. \(y = -2x - 4\)
• D. \(y = 2x - 24\)

Problem 24. (4 pts) Simplify completely.

\[
\frac{-4x^{17} + 6x^8 - 8x^3}{-2x^3}
\]

• A. \(2x^{14} + 3x^5 - 4\)
• B. \(2x^{14} - 3x^5\)
• C. \(-4x^{17} + 6x^8\)
• D. \(2x^{14} - 3x^5 + 4\)

Problem 25. (4 pts) Simplify.

\[
\frac{48x^6(y^{-7})^3}{4x^{-5}y^{-22}}
\]

• A. \(\frac{12x}{y^{13}}\)
• B. \(12x^{11}y\)
• C. \(\frac{x^{11}}{12y^{43}}\)
• D. \(12xy^{18}\)
Answer:

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