

## 2nd Year Algebra 1 Review

1. Simplify the following expressions:



2. Solve the system of equations:
- $$\begin{cases} 2x + 3y = 12 \\ x - y = 4 \end{cases}$$
3. Find the slope of the line passing through the points  $(-2, 5)$  and  $(3, -1)$ .
4. Factor the quadratic expression  $x^2 - 5x + 6$ .

5. Simplify:

$$\frac{3x^2 - 12x + 12}{x^2 - 4}$$

$$\frac{2x^2 + 7x + 3}{x + 1}$$

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

$$\frac{5x^2 - 10x + 5}{x - 1}$$

6. Find:

$$\frac{d}{dx}(3x^2 - 5x + 7)$$

$$\frac{d}{dx}(x^3 + 2x^2 - 4x + 1)$$

$$\frac{d}{dx}(x^4 - 3x^3 + 2x^2 - x + 5)$$

$$\frac{d}{dx}(x^5 - 2x^4 + x^3)$$

7. Evaluate:

$$\frac{2x^2 + 3x - 5}{x - 2} \text{ at } x = 3$$

$$\frac{4x^2 - 9}{x + 1} \text{ at } x = 2$$

$$\frac{5x^2 - 10x + 5}{x - 1} \text{ at } x = 4$$

8. Simplify:

$$\frac{3x^2 - 12x + 12}{x^2 - 4}$$

$$\frac{2x^2 + 7x + 3}{x + 1}$$

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

$$\frac{5x^2 - 10x + 5}{x - 1}$$

9. Find the area:

$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(4)(6)$$

$$A = 12$$

$$A = \frac{1}{2}(8)(5)$$

$$A = 20$$

$$A = 40$$