

## Notes - Simplifying Algebraic Expressions

Name: \_\_\_\_\_ E# \_\_\_\_\_

**To add or subtract, you must have like terms.**

\*Just like when you +/- fractions and decimals - they must be the same!\*

Example:  $2z + 4z + 3z$

$$1) 15x + 12x - 4x$$

$$2) 21a + 10b - 8a + 6b$$

Example:  $3s + 5r + 7s - 2r$

$$3) 4k^2 - 6k + 9k^2$$

**To multiply or divide, you DON'T need like terms**

Example:  $5(2z)$

$$1) 11(2f)$$

$$2) (7b)8a$$

Example:  $12(3a)$

$$3) 6k(10j)$$

## Follow the Order of Operations

Example:

$$\text{Simplify: } 4(x + 2) + 5(x + 3)$$

## You Try:

$$1) 7x + 3x - 2x$$

$$2) 9g + 6d - 4g + 2d$$

Simplify by combining like terms. (Use the distributive property when necessary)

$$3) 3c^2 + 5d + 2c^2 - 7 + d$$

## Simplifying Algebraic Expressions

Name: \_\_\_\_\_ Date: \_\_\_\_\_ E# \_\_\_\_\_

Simplify by combining like terms. (Use the distributive property when necessary)

$$1) 7x + 3x - 2x$$

$$2) 9g + 6d - 4g + 2d$$

3)  $3c^2 + 5d + 2c^2 - 7 + d$

$$4) 9g + 7x^2 - 6g + 4 - x^2$$

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

$$6) 8x + 2x^2 + 5z + 3 - x + x^2$$

13) Distribute first, then combine like terms.

$$7x + 3(x + 6) + 5x - 3$$

1. Distribute:

Distribute:

2. Circle/Box Like Terms:

Combine like terms:

3. Combine Like Terms:

Simplified Expression:

14) Distribute first, then combine like terms.

$$2(4y + 8y^2) - 4y - 6$$

Combine like terms:

Simplified Expression:

Distribute first, then combine like terms.

1) $7c^2 + 1 + 4c - c^2 - c$	2) $5a^2 + 7a + 3b - 5a + 6$	3) $3y^2 + 2y - y^2 + 7 + 5y + 3$
4) $6(y + 3a) - 7a - 4y$	5) $4(x^2 + 3y + 1) - 2y + 4$	6) $5(b^2 + c) + 4(b+2c^2)$

Simplify the following expressions:

1. $5d + 3d$	2. $7a - 4a + 2b - b$
3. $6x + 5y - 2x$	4. $8z + 8t - 5t + 1$
5. $n + 3n + 6m - 4m^2$	6. $5d + 7r + 18d - 4r$
7. $8f + 6 - f + 6$	8. $16n + 28s - 7s - r + 3r$

Use expression vocabulary to find the parts of each expression.

1) $7y^4 + 13x + 4y - 4$	2) $8z + 8x - 5$
Terms: _____	Terms: _____
Variables: _____	Variables: _____
Coefficients: _____	Coefficients: _____
Constants: _____	Constants: _____

Factor out the GCF of the following expressions.

10x <sup>2</sup> + 15 - 25x	16x <sup>2</sup> + 4y <sup>3</sup> - 10y	21z <sup>3</sup> + 14z - 28

19.  $4(a + 3b) + 2b - a$

20.  $\frac{1}{2}(2j + 8) + j$

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