

Evaluate an Expression	<p>Simplify:</p> $18 \div 6 + 4(5 - 2)$	$5 + 2^3 + 3[6 - 3(4 - 2)]$
	$9 + 5^3 - [4(9 + 3)]$	$7^2 - 2[4(5 + 1)]$
	<p>Evaluate <math>7x - 4</math> When <math>x = 5</math></p> $7(5) - 4$ $31$	<p>When <math>x = 1</math></p> $7(1) - 4$ $7 - 4$ $3$
	<p>Evaluate <math>x^2</math> and <math>3^x</math>, when <math>x = 4</math>.</p> $4^2 = 16$ $3^4 = 81$	

Evaluate  $2x^2 + 3x + 8$  when  $x = 4$

$$2(4)^2 + 3(4) + 8$$

$$2(16) + 12 + 8$$

$$32 + 12 + 8$$

$$52$$

<p>Term - constant or product of a constant and Variables</p> <p>Coefficient</p>	<p><math>-2</math>      <math>15x</math>      <math>36x^2y^3z^5</math>      <math>\frac{x}{3}</math></p> <p><math>2x + 7</math></p> <p>∨</p> <p>2 terms</p> <p>Identify the coefficient of each term</p> <p>a) <math>14y</math>                                  b) <math>15x^2</math>                                  c) <math>a</math></p> <p><math>14</math>    <math>15</math>    <math>1</math></p>
<p>Like Terms</p> <p>Constants or have the same Variables raised to the same power.</p> <p>1 term monomial</p> <p>2 terms binomial</p> <p>3 terms trinomial</p> <p>↓</p> <p>polynomial</p>	<p>Identify the like terms</p> <p><math>y^3, 7x^2, 14, 23, 4y^3, \underline{9x}, 5x^2</math></p> <p><math>y^3, 4y^3</math></p> <p><math>7x^2, 5x^2</math></p> <p><math>14, 23</math></p> <p><math>9, 2x^3, y^2, 8x^3, 15, \underline{9y}, 11y^2</math></p> <p><math>9, 15</math></p> <p><math>2x^3, 8x^3</math></p> <p><math>y^2, 11y^2</math></p> <p>Identify the terms in each expression</p> <p><math>4x^2 + 5x + 17</math>                                  <math>5x + 2y</math></p> <p><math>4x^2</math>    <math>5x</math></p> <p><math>5x</math>    <math>2y</math></p> <p><math>17</math></p>

### Combining like terms

#### Like Terms

1) Identify Like terms

2) Rearrange the expression so like terms are together

3) Add or Subtract coefficients keeping variable part the same

Simplify:  $2x^2 + 3x + 7 + 4x + 5 + x^2$

$$(2x^2 + x^2) + (3x + 4x) + (7 + 5)$$

$$3x^2 + 7x + 12$$

Simplify:  $4y^2 + 2 + 5y + 4y + 8y^2 + 5$

$$12y^2 + 9y + 7$$

### Translating an English Phrase to an Algebraic Expression

Operation	Phrase	Expression
Addition	<i>a</i> plus <i>b</i> the sum of <i>a</i> and <i>b</i> <i>a</i> increased by <i>b</i> <i>b</i> more than <i>a</i> the total of <i>a</i> and <i>b</i> <i>b</i> added to <i>a</i>	$a + b$
Subtraction	<i>a</i> minus <i>b</i> the difference of <i>a</i> and <i>b</i> <i>a</i> decreased by <i>b</i> <i>b</i> less than <i>a</i> <i>b</i> subtracted from <i>a</i>	$a - b$
Multiplication	<i>a</i> times <i>b</i> the product of <i>a</i> and <i>b</i> twice <i>a</i>	$a \cdot b, ab, a(b), (a)(b)$ $2a$
Division	<i>a</i> divided by <i>b</i> the quotient of <i>a</i> and <i>b</i> the ratio of <i>a</i> and <i>b</i> <i>b</i> divided into <i>a</i>	$a \div b, a/b, \frac{a}{b}, b \overline{)a}$

Translate each English phrase into an algebraic expression

a) the difference of  $17x$  and  $5$   $17x - 5$

b) the quotient of  $10x^2$  and  $7$   $10x^2 \div 7$   $\frac{10x^2}{7}$

c) the sum of  $17y^2$  and  $19$   $17y^2 + 19$

d) the product of  $7$  and  $z$   $7z$

e) Seventeen more than  $y$   $y + 17$

f) Nine less than the product of nine and  $x$  squared  $9x^2 - 9$

g) five times the sum of  $m$  and  $n$   $5(m + n)$

h) the sum of five times  $m$  and  $n$   $5m + n$

g) the difference of two times  $x$  and eight  $2x - 8$

h) The length of a rectangle is six less than the width. Let  $w$  represent the width of the rectangle. Write an expression for the length of the rectangle.

$$l = w - 6$$

i) Lauren has dimes and nickels in her purse. The number of dimes is three more than seven times the number of nickels. Let  $n$  represent the number of nickels. Write the expression for the number of dimes.

$$d = 3 + 7n$$

Summary

Justin's car insurance has \$750 deductible per incident. This means that he pays \$750 and his insurance company will pay all costs beyond \$750. If Justin files a claim for \$2,100.

a) How much will he pay?  $\$750$

b) How much will the insurance company pay?  
 $2100 - 750 = \$1350$

Simplify:

$$3(1 + 9 \cdot 6) - 4^2$$

$$3(1 + 54) - 4^2$$

$$3(55) - 16$$

$$165 - 16$$

$$149$$

$$4 \cdot \frac{12}{8}$$

$$\frac{4}{1} \cdot \frac{12}{8} = \frac{48}{8}$$

$$= 6$$

$$33 \div 3 + 8 \cdot 2$$

$$11 + 16$$

$$27$$

$$4 + 6(3 + 6)$$

$$4 + 6(9)$$

$$4 + 54$$

$$58$$

$$3^2 - 18 \div (11 - 5)$$

$$9 - 18 \div 6$$

$$9 - 3$$

$$6$$