



Warm Up Grade 7

Oct. 19

- 1) In the expression $5 + 3v$,
- constant 5
 - Coefficient 3
 - variable ✓
 - Operation(s) multiply
add

Write the above algebraic expressions in words.

5 more than 3 times a number.

- In the expression $\frac{p}{9} - 4$
- constant 4
 - Coefficient ✓
 - variable p
 - Operation(s) subtract
divide

Write the above algebraic expressions in words.

A number divide by 9, then subtract 4

- 2) If $r = 2$ then what does $6 + 7r$ equal?

$$6 + 7(2)$$

$$6 + 14$$

$$\boxed{20}$$

- 3) Combine like terms, then evaluate for $h = 4$ and $p = 2$

a) $8 + 9h + 7 - 2h - 1h - 6$

$$9h - 2h - 1h + 8 + 7 - 6$$

$$6h + 9$$

$$6(4) + 9$$

$$24 + 9$$

$$\boxed{33}$$

b) $4h + 9p - 2h - 5p + 10$

$$= 4h - 2h + 9p - 5p + 10$$

$$2h + 4p + 10$$

$$2(4) + 4(2) + 10$$

$$8 + 8 + 10$$

$$\boxed{26}$$

Combining Like terms

1. Simplify the following:

(a) $4v + 7v = 11v$

(b) $5n + 8n - 4n = 9n$

(c) $9g - 4g = 5g$

(d) $3a + 5 + 8 + 6a = 9a + 13$

(e) $7 + 4b + 6 + 3b = 7b + 13$

(f) $10f + 8 - 7f + 9 = 3f + 17$

(g) $3d + 9c - 2d + 2c + 6d = 7d + 11c$

(h) $4s + 12 - 3 + 8s - 5 + 3s = 15s + 4$

(i) $4r + 7w + 8r + w + r = 13r + 8w$

(j) $16 + h + 4h - 7 - 2h + h = 4h + 9$

★ ★ ★
(k) $m + m + m + m = 4m$
★ ★ ★

(l) $4 + y + 2 + 2y + y + 1 = 4y + 7$

(m) $20u + 7 + 8 - 3u + 7v = 17u + 7v + 15$

(n) $b + f + 2f + 3b + f + 4b = 8b + 4f$

(o) $3e + 7t + 5 + 4t + 8 = 11t + 3e + 13$

(p) $3x + 6y + 3x - 4y - 9 = 6x + 2y - 9$

(q) $9j - 7 + 4j + 10 = 13j + 3$

(r) $3x + 7y + 2xy + 4xy + 5x = 8x + 7y + 6xy$

(s) $6h + 9b - 5h + 4b + 2h = 3h + 13b$

(t) $9a + 6b + 3ab + 4b + 2ab + a = 10a + 10b + 5ab$

(u) $7u - 7uv + 8u - 2uv + 9 - 6u - 8 = 9u + 5uv + 1$

2. Simplify the following, then evaluate with the given values.

(a) $4a + 8 - a + 6, a = 5$

(b) $3g - 2g + h + g - 7, g = 10, h = 3$

$3a + 14$
 $3 \times 5 + 14$
 $15 + 14 = 29$

$2g + h - 7$
 $2 \times 10 + 3 - 7$
 $20 + 3 - 7 = 16$

(c) $5s + 2t + s + t - 7, s = 2, t = 9$

(d) $x + y + 3 + 2x + 5y + 6x, x = -1, y = 4$

$6s + 3t - 7$
 $6 \times 2 + 3 \times 9 - 7$
 $12 + 27 - 7 = 32$

$9x + 6y + 3$
 $9x - 1 + 6 \times 4 + 3$
 $-9 + 24 + 3 = 18$

(e) $2a + 6ab - a + b + 3ab, a = 6, b = 10$

(f) $7k + 8 - 4 - 3k + 6 + k, k = 8$

$a + 9ab + b$
 $6 + 9 \times 6 \times 10 + 10$
 $6 + 540 + 10$
 546

$5k + 10$
 $5 \times 8 + 10$
 $40 + 10$
 50

2. Simplify the following, then evaluate with the given values.

(a) $4a + 8 - a + 6$, $a = 5$

$$\begin{aligned} & \underline{3a + 14} \\ & 3 \times 5 + 14 \\ & 15 + 14 = 29 \end{aligned}$$

(b) $3g - 2g + h + g - 7$, $g = 10$, $h = 3$

$$\begin{aligned} & \underline{2g + h - 7} \\ & 2 \times 10 + 3 - 7 \\ & 20 + 3 - 7 \\ & 16 \end{aligned}$$

(c) $5s + 2t + s + t - 7$, $s = 2$, $t = 9$

$$\begin{aligned} & \underline{6s + 3t - 7} \\ & 6 \times 2 + 3 \times 9 - 7 \\ & 12 + 27 - 7 \\ & 32 \end{aligned}$$

(d) $x + y + 3 + 2x + 5y + 6x$, $x = -1$, $y = 4$

$$\begin{aligned} & \underline{9x + 6y + 3} \\ & 9 \times -1 + 6 \times 4 + 3 \\ & -9 + 24 + 3 \\ & 18 \end{aligned}$$

(e) $2a + 6ab - a + b + 3ab$, $a = 6$, $b = 10$

$$\begin{aligned} & \underline{a + b + 9ab} \\ & 6 + 10 + 9 \times 6 \times 10 \\ & 6 + 10 + 540 \\ & 556 \end{aligned}$$

(f) $7k + 8 - 4 - 3k + 6 + k$, $k = 8$

$$\begin{aligned} & \underline{5k + 10} \\ & 5 \times 8 + 10 \\ & 40 + 10 \\ & 50 \end{aligned}$$

6) In each of the following state the coefficient, constant, variable and what operations are in the expression.

a) $12k - 7$	b) $5 + 8p$	c) $m - 13$	d) $6t$	e) $72/h$
Coefficient: <u>12</u>	Coefficient: <u>8</u>	Coefficient: <u>1</u>	Coefficient: <u>6</u>	Coefficient: <u>72</u>
Constant: <u>7</u>	Constant: <u>5</u>	Constant: <u>13</u>	Constant: <u>0</u>	Constant: <u>/</u>
Variable: <u>k</u>	Variable: <u>p</u>	Variable: <u>m</u>	Variable: <u>t</u>	Variable: <u>h</u>
Op: <u>multiply, subtract</u>	Op: <u>multiply, add</u>	Op: <u>subtract</u>	Op: <u>multiply</u>	Op: <u>divide</u>

7) Write the above expressions into a phrase.

a) The product of 12 and a number decreased by 7

b) 5 more than 8 times a number

c) a number reduced by 13

d) the product of 6 and a number

e) 72 divided by a number

Review

Variables, Constants & Coefficients

★ A constant is value that never changes. (A Number)

Ex) There will always be 7 days in a week,

★ A variable is a value that changes. (Letter)

Ex 1) The number of students present in grade 7 class can change from day to day, or

Ex 2) the number of days it rains in one week changes.

- a letter that represent the unknown value

Ex 1) Let p represents the number of students absent from school today.

Ex 2) Let a represent the teacher's age.

★ A coefficient is a number in front of the variable
represents repeated addition

Repeated Addition is when you write the variable being added to itself.

Example) $3c = c + c + c$

$$5w = w + w + w + w + w$$

When using variables, you do not always have to include the times sign, it is assumed to be there.

Ex 1) $6n$ means $6 \times n$

Ex 2) $12t$ means $12 \times t$.

Review

Often we translate phrases into expressions in math.

★ Algebraic expression contains a variable and an operation.

There are certain words that we associate with the different operations:

<u>Addition</u>	<u>Subtraction</u>	<u>Multiplication</u>	<u>Division</u>
sum	difference	product	quotient
plus	minus	times	divided by
increased by	decreased by	double, twice (x2)	Share
more	reduced by	of	grouped
gain	less	triple (x3)	
deposit	lost	per	
	debut	for each	
	withdraw	for every	

Name: _____ Worksheet

Always state what your variable represents

1. Translate the following it to an algebraic expressions:

- (a) a number reduced by 50
- (b) 6 more than a double a number
- (c) the product of 7 and a number reduced by 5
- (d) The sum of a number and 6
- (e) a number divide by 7 then increased by 11
- (f) A number is subtracted from 9

2. Write the following algebraic expressions as words:

- (a) $6x - 8$
- (b) $m + 14$
- (c) $3x$
- (d) $15 - k$

Name: _____

Combining Like terms

3. Simplify the following:

(a) $4m + 6y - 2y + 6m$

(b) $6b + 7f + 2b + 10$

(c) $15k - 11k$

(d) $8a + 6 + 8 - 5a$

(e) $10 + 16b + 6 + 3b$

(f) $18f + 11 - 7f + 9$

(g) $14r + 12c - 3r - 7c + 6d$

(h) $9s + 12 - 10 + 2s + 7 - 4s$

(i) $16r + 4w + 11r + w - 5r$

(j) $16 + h + 4h - 7 - 2h + h$

(k) $6h + 9b - 5h + 4b + 2h$

(l) $3x + 6y + 3x - 4y - 9$

(m) $22u + 14 - 3 - 2u + 7v$

(n) $b + f + 2f + 3b + f + 4b$

(o) $3e + 7t + 5 + 4t + 8$

4. Simplify the following, then evaluate with the given values.

(a) $10a + 6 - 5 - 2a$, $a = 5$

(b) $9g + 8 + g - 4g + 7h + 4$, $g = 10$, $h = 3$

(c) $7s + 6s - s + 8t - 2t$, $s = 2$, $t = 9$

(d) $2y + 3x + 5x + 7y + 15$, $x = 1$, $y = 4$

5) In each of the following state the coefficient, constant, variable and what operations are in the expression.

a) $6 + 2n$	b) $8p - 6$	c) $y - 14$	d) $2g$	e) $f / 4$
Coefficient: ___	Coefficient: ___	Coefficient: ___	Coefficient: ___	Coefficient: ___
Constant: ___	Constant: ___	Constant: ___	Constant: ___	Constant: ___
Variable: ___	Variable: ___	Variable: ___	Variable: ___	Variable: ___
Op: _____	Op: _____	Op: _____	Op: _____	Op: _____

6) Write the above expressions into a phrase.

a) _____

b) _____

c) _____

d) _____

e) _____

