

**Preview of the Lesson:**

1. Evaluate Algebraic Expressions.
2. Simplify Algebraic Expressions
3. Simplifying with Fractions



To the lesson!

flippedmath.com

## I. EVALUATE & SIMPLIFY ALGEBRAIC EXPRESSIONS

**Order of Operations:**

Algebra I  
Section 1.1



P E M D A S

G E M D A S

**Evaluate.**

1.  $k + 6(h + j)$   
use  $h = -6, j = -2,$  and  $k = -1.$

2.  $z - (x + y)^3$   
use  $x = -6, y = 3,$  and  $z = 2.$

3.  $\frac{a-b}{-c^2}$   
use  $a = -6, b = -2,$  and  $c = 2$

4.  $z - (y + x^2)$   
use  $x = -4, y = -14,$  and  $z = 2$

You Try!

**Combine Like Terms:**

$$4x^2 + y^2 + x + 5y^2$$

Algebra I  
Section 2.4



You should know the following words:

term, expression, variable, constant, and coefficient

**Simplify.**

5.  $5w - 3w(3w + 6)$

6.  $-9(4 + 3b) - 3(-7b + 5)$

7.  $-5r(3r + 2) - r$

8.  $-4x(x - 1) - (-x + 5)$

**Writing Expressions:** Mr. Bean drives a scooter. (No...seriously, he *really* does.) Suppose his scooter currently has 8,200 kms on it and he plans on driving the scooter 36km per day. Write an expression for the number of km Mr. Bean drives on his scooter over time.



Write your questions  
and thoughts here!

# 1.1 – Basics of Algebra

2

## Finding the LCM:

Find the LCM of the following numbers.

- a. {6, 5, 3}      b. {2, 3, 5}      c. {7, 1, 2, 4}      d. {4, 8, 12, 24}

## Distributing Through Fraction:

Simplify.

9.  $12\left(\frac{2}{3}x - y - \frac{1}{4}y + \frac{5}{6}x\right)$

10.  $15\left(\frac{1}{3}y - \frac{3}{5}x - \frac{2}{3}y + \frac{4}{15}x\right)$

11.  $21\left(4x - \frac{4}{7}y - \frac{13}{3}y + \frac{20}{21}x\right)$

12.  $24\left(\frac{2}{3}y - \frac{3}{4}x - \frac{2}{8}y + \frac{5}{6}x\right)$

Now summarize what  
you have learned!

---

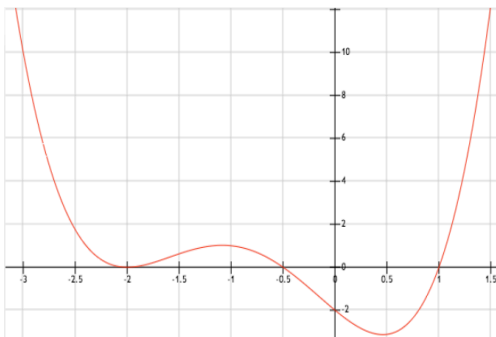
---

---

---

## ALGEBRA SKILLZ!

### GRAPH



- a.  $f(0) =$   
b. y-intercept =  
c.  $f(x) = 10$  when  $x =$   
d. x-intercept(s) =

### SIMPLIFY

Simplify the radical

- a.  $\sqrt{32}$   
  
b.  $2\sqrt{50}$

### SOLVE

Solve for x.

a.  $-5 + \frac{x}{2} = 37$

### FACTOR

b.  $x^2 - 12x + 27$

## 1.1 Practice - Algebra Basics

1)  $x - (x - (z + x))$ ; use  $x = 6$ , and  $z = 3$

2)  $j \cdot \frac{2h}{6}$ ; use  $h = -6$ , and  $j = -3$

3)  $a^3 - cb^2$ ; use  $a = -1$ ,  $b = 3$ , and  $c = 5$

4)  $j + j(-3 - j + k)$ ; use  $j = 5$ , and  $k = -3$

5)  $q - m - (q + m)$ ; use  $m = 6$ , and  $q = -1$

6)  $(j + h)^2(-4 - h)$ ; use  $h = -3$ , and  $j = 1$

**Simplify each expression.**

7)  $-7m + 3(5m + 2)$

8)  $9m(m + 7) + 8m$

9)  $4(x + 9) + 8x$

10)  $-(k - 5) - 6(-9k + 7)$

11)  $-8(-3a - 7) - 6(a + 8)$

12)  $-4x(2x - 1) - 9x(2x - 3)$

13) Find the **Least Common Multiple** of the following sets of numbers:

- a. {12, 9}   b. {7, 12, 2}   c. {3, 5, 9}   d. {2, 3, 4, 8, 9}

**Simplify each expression.**

14)  $16\left(\frac{1}{8}x - \frac{3}{4}y - \frac{3}{16}x - \frac{1}{2}y\right)$

15)  $12\left(\frac{1}{3}x - \frac{1}{12}y - \frac{1}{4}x - \frac{2}{3}y\right)$

16)  $12\left(\frac{5}{6}x - \frac{1}{6}y - \frac{1}{4}y - \frac{5}{12}y\right)$

17)  $18\left(\frac{2}{3}y + \frac{5}{18}x - \frac{1}{2}x - \frac{5}{6}y\right)$

# 1.1 Application

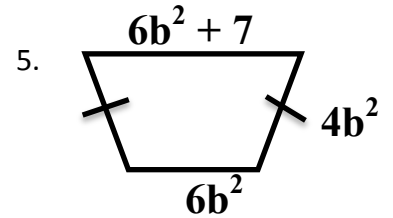
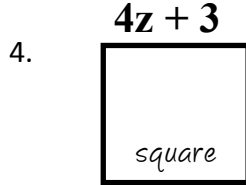
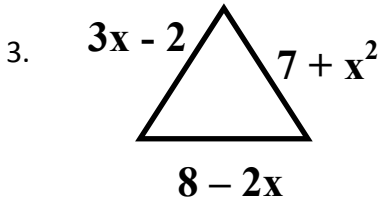
**Evaluate.**

1.  $z - (x + y)^3$  for  $z = 3$ ,  $x = -2$  and  $y = 1$

**Simplify.**

2.  $-2x(2x - 1) - (3 - x)$

Find the *perimeter* of each of the shapes pictured below:



6. Draw and label a rectangle with width of  $7x$  and length of  $6x - 7$ . Write an expression to find the total area.

7. Brust and Sully's favorite weekend hangout is Yabadoo's kid center. A large pizza there costs \$14.99 and each topping is \$1.99 extra.

- a. Write an expression that represents the total cost of large pizza. Let  $t = \#$  of toppings.
- b. Brust orders an "everything" pizza with 8 toppings. Use your expression to find the total cost of the pizza.
- c. Kelly and Bean show up and order 4 identical pizzas. Write an expression that represents the total cost for the 4 pizzas. (Hint: Each pizza would have the same # of toppings.)
- d. Kelly and Bean order sardines and pineapple on the 4 pizzas. Use your expression from (c) to find the total cost of the 4 pizzas.

9. **SAT PREP** Below are sample SAT questions. Terminate it! like a rational decimal!

<p style="text-align: center;"><b>MULTIPLE CHOICE</b></p> <p>All numbers divisible by both 4 and 15 are also divisible by which of the following?</p> <p>(A) 6 (B) 8 (C) 18 (D) 24 (E) 45</p>	<p style="text-align: center;"><b>GRID IN</b></p> <p>If <math>\frac{x}{2} = y</math> and <math>2y = y</math>, what is the value of <math>x</math>?</p> <div style="text-align: right;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">•</td> <td style="text-align: center;">•</td> <td style="text-align: center;">•</td> <td style="text-align: center;">•</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">3</td> <td style="text-align: center;">3</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">4</td> <td style="text-align: center;">4</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">5</td> <td style="text-align: center;">5</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">6</td> <td style="text-align: center;">6</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">7</td> <td style="text-align: center;">7</td> <td style="text-align: center;">7</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">8</td> <td style="text-align: center;">8</td> <td style="text-align: center;">8</td> </tr> </table> </div>					•	•	•	•	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8
•	•	•	•																																										
0	0	0	0																																										
1	1	1	1																																										
2	2	2	2																																										
3	3	3	3																																										
4	4	4	4																																										
5	5	5	5																																										
6	6	6	6																																										
7	7	7	7																																										
8	8	8	8																																										