

# Summer Packet for Honors Algebra I and Algebra I Students

The following problems should be completed over the summer and handed in on the first day of class. The intention of the packet is to identify areas of strength and areas for improvement, so we encourage students to NOT use any outside resources, including: internet, calculators, friends, etc. If you have significant trouble with the material and/or have general questions, please email the Head of the Mathematics Department, Michelle Gavin, at [mgavin@solebury.org](mailto:mgavin@solebury.org).

Use addition, subtraction, multiplication, or division to find the following answer for each problem.

1.  $94 - 87$

2.  $-51 - 98$

3.  $29 - 100$

4.  $-777 - (-801)$

5.  $-844 \div 4$

6.  $-\frac{183}{-61}$

7.  $891 \div -9$

8.  $5\frac{2}{5} + 4\frac{1}{5}$

9.  $\frac{2}{3} + \frac{5}{8} + \frac{5}{6}$

10.  $9 - 2\frac{1}{3}$

11.  $10\frac{1}{4} - 3\frac{2}{3}$

12.  $\frac{1}{2} * \frac{5}{8} * \frac{4}{5}$

13.  $-\frac{16}{9} \div 8$

14.  $-\frac{3}{8} \div \frac{3}{4}$

15.  $-10(-2 \cdot 18)$

Write <, >, or = for each of the following.

1.  $\frac{7}{10}$  \_\_\_\_\_  $\frac{3}{10}$

2.  $\frac{5}{16}$  \_\_\_\_\_  $\frac{3}{4}$

3.  $\frac{2}{8}$  \_\_\_\_\_  $\frac{1}{4}$

4.  $-\frac{7}{8}$  \_\_\_\_\_  $-\frac{8}{9}$

5.  $-\frac{8}{12}$  \_\_\_\_\_  $-\frac{4}{6}$

6.  $|-3|$  \_\_\_\_\_  $|3|$

7.  $0.437$  \_\_\_\_\_  $0.435$

8.  $-0.57$  \_\_\_\_\_  $-0.570$

Write each number in scientific notation.

1. 6,780,000

2. 0.0678

3. 0.00043201

4. 824.25

Rewrite the following expressions in scientific notation in standard form (i.e. not scientific notation).

1.  $4.869 \times 10^3$

2.  $2.67439 \times 10^{-2}$

3.  $5.7 \times 10^6$

4.  $9.762 \times 10^{-4}$

Write as a decimal:

1.  $\frac{7}{10}$

2.  $\frac{1}{3}$

3.  $8\frac{1}{4}$

Write as a percent:

4.  $\frac{4}{5}$

5.  $1\frac{2}{5}$

6.  $\frac{2}{3}$

Write as a decimal:

7. 51%

8. 102%

9.  $\frac{3}{4}\%$

Write as a fraction in lowest terms:

10. 125%

11. 3%

12. 50%

13. What number is 15% of 60?

14. 66 is 11% of what number?

15. 308 is what percent of 350?

16. 120 is what percent of 100?

**Use the Distributive Property to simplify the following:**

1.  $5(2x - 3)$

2.  $-3(x - 4)$

3.  $8 - 3(x + 5)$

4.  $2(x - 5) + 3(x + 6)$

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

6.  $2x - 5(x - 3y)$

**Use order of operations (PEMDAS) to determine each answer.**

1.  $4 \cdot 16 + 8 - 0 \div 5$

2.  $8(3 + 4) - 2 \cdot 8 \div (5 - 3)$

3.  $(8^2 \div (13 - 4)^2 \div 5)$

4.  $3 - (12 \div 4 \cdot 3) - 1$

5. Insert parentheses to make the following equation true:  $8 + 12 \div 4 \cdot 5 = 1$

**Evaluate the following expressions when  $x = 4$ ,  $y = -2$ , and  $z = 5$ . Show all work.**

1.  $3x - y$

2.  $x - 2y + 3z$

3.  $\frac{1}{2}x + y^2$

4.  $\frac{x-y}{-3}$

5.  $[xy]$

6.  $|2z| + |3y|$

**Use the variable  $x$  for the following. Translate each statement into an expression.**

1. A number increased by four

2. Four less than a number

3. Four more than a number divided by seven
4. Four more than seven times a number
5. The quotient of a number and four
6. The quotient of four and a number
7. The square of the sum of a number and four

**Solve each equation for  $x$ . Show all work.**

1.  $30x = 480$

2.  $17 = \frac{x}{3}$

3.  $x + 22 = 104.8$

4.  $184 - x = 51$

5.  $4y - 8 = 20$

6.  $\frac{x}{24} = \frac{5}{12}$

7.  $0.5x = 3.5$

8.  $-3(4 - x) = 12$

9.  $2(x - 3) - 4 = 10$

10.  $12 - 7x = -3x - 8$

**For each of the following, write an algebraic equation. Then solve the equation.**

1. Eight times a number, increased by 6 is 62. What is the number?

2. Number C divided by 0.4 is 10. What is C?

3. One half of a number is equal to 14. What is the number?

Solve the following inequalities for  $x$ . Graph solutions on a number line.

1.  $x + 4 \leq -8$

2.  $4x \geq -12$

3.  $6 - x > 7$

4.  $15 < -3x$

5.  $\frac{x}{5} \leq -3$

6.  $\frac{x}{-5} > -2$

7.  $-\frac{x}{7} > 2$



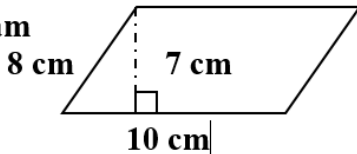
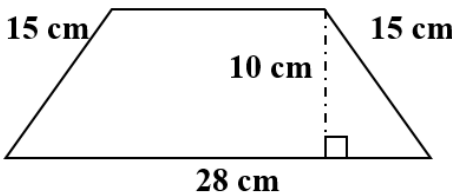
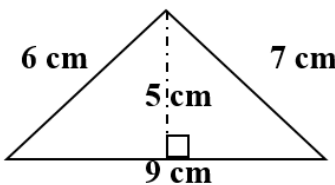
8.  $2x - 4 > 12$

9.  $7 < 4 + x$

10.  $\frac{x}{7} - 4 \leq 2$



Calculate the area and perimeter of the following:

	Perimeter	Area
<b>Rectangle</b> 	1)	2)
<b>Square</b> 	3)	4)
<b>Parallelogram</b> 	5)	6)
<b>Trapezoid</b> 	7)	8)
<b>Triangle</b> 	9)	10)

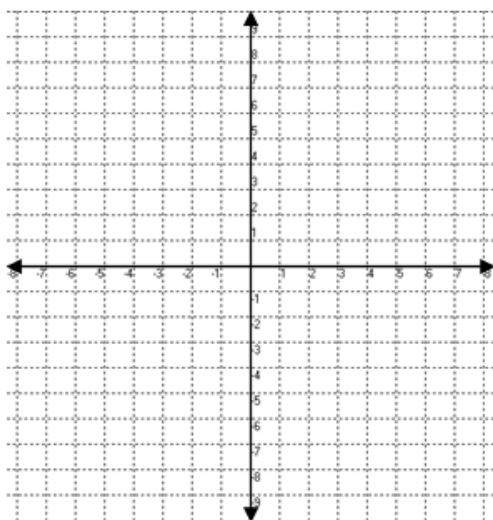
## Coordinate Plane

1. Exactly where in coordinate plane are the following ordered pairs located? (quadrant, axis, origin)

- a)  $(-4, 9)$                       b)  $(10, 0)$                       c)  $(14, -11)$   
 d)  $(0, -16)$                       e)  $(0, 0)$                       f)  $(-7, -18)$

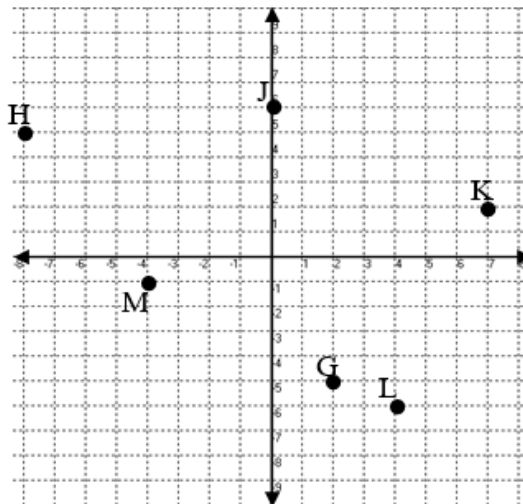
2. Plot the given ordered pairs.  
 (Label with the designated letter)

- A(3, -5)                      B(0, 2)  
 C(-1, -4)                      D(-6, 0)  
 E(1, 3)                      F(-3, 1)



3. Using the coordinate plane given, write the ordered pairs for each point.

- G( , )                      H( , )  
 J( , )                      K( , )  
 L( , )                      M( , )



## Data and Statistics:

The following numbers represent test scores in a Harry Potter English class:

73 65 60 62 75 75 68 88 90 90 90 100

1. Identify the following:

- a. Minimum:                      b. Maximum:                      c. Mode:                      d. Range:  
 e. Median:                      f. Mean:

2. What is the probability that a student in the class earned a test score of 90?