

**Honors Geometry**  
**Summer Assignment**

**2009-2010**



## **Summer Math Review**

The Math Department of Lancaster High School has a summer math program for students entering or continuing in the Math Honors program. These are things you should know and recall very quickly. This extra practice this summer will allow us to study more topics during the school year. This is not meant to be a burden for you but an exercise in keeping our basic skills at work.

I will be available during most of July to answer questions you might have by e-mail. I am looking forward to meeting all of you in person when the school year begins.

Email address: [moueini@lcsd.k12.sc.us](mailto:moueini@lcsd.k12.sc.us)

**Solve each equation below.**

1.  $12 - 3x = -3$

2.  $15x + 34 = 3x - 9$

3.  $4x + 2(x - 3) = 0$

4.  $2[4(x + 3) - 3x] = 38$

5.  $2(x + 5) - 7 = 3(x - 2)$

6.  $3(x + 3) = 5(1 - x) - 1$

7.  $-\frac{2}{5}x + 2 = \frac{3}{10}x + \frac{x}{4}$

8.  $\frac{12}{x} = \frac{10}{x+1}$

9.  $\frac{6}{x-4} = \frac{5}{x-3}$

10.  $x^2 + 4x + 3 = 0$

11.  $x^2 + 16 = 8x$

12.  $3x(2x - 1) = 0$

13.  $x^2 - 7x + 3 = 0$

14.  $\frac{1}{4}(2x - 4) = \frac{3}{2}(x + 1)$

**Calculate each of the following:**

<p>1. the slope of the line between the points <math>(-1,4)</math> and <math>(3, -6)</math></p>	<p>2. the equation of the line with slope of <math>-4</math> through the point <math>(2,5)</math></p>
<p>3. the equation of the line through the points <math>(2,3)</math> and <math>(4,-1)</math></p>	<p>4. the equation of the line parallel to <math>y = 3x + 4</math> through the point <math>(4,2)</math></p>
<p>5. the equation of the line perpendicular to <math>y = \frac{1}{3}x + 5</math> through the point <math>(6,2)</math></p>	<p>6. the slope-intercept form of the equation <math>2x + 3y = 6</math></p>
<p>7. the equation of the line with slope of <math>0</math> through the point <math>(-3,2)</math></p>	<p>8. the equation of the line with undefined slope through the point <math>(4,-5)</math></p>

**Simplify the following radicals:**

Leave all answers in radical form.

1. $\sqrt{48}$	2. $\sqrt{12}$
3. $2\sqrt{18}$	4. $3\sqrt{5} + 4\sqrt{5}$
5. $(6\sqrt{3})^2$	6. $\frac{5}{\sqrt{2}}$
7. $\frac{\sqrt{24}}{\sqrt{3}}$	8. $\sqrt{36} + \sqrt{54}$
9. $\frac{2\sqrt{3}}{\sqrt{6}}$	10. $\frac{\sqrt{32}}{\sqrt{20}}$
11. $(3\sqrt{12})(5\sqrt{6})$	12. $\sqrt{128}$

Formulas to remember:

Area of a square = (side)(side) or (side)<sup>2</sup>

Area of a rectangle = (length)(width)

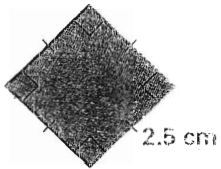
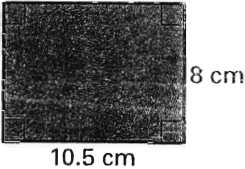
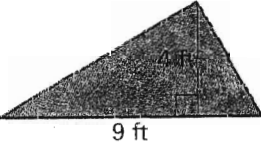
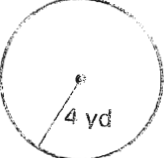
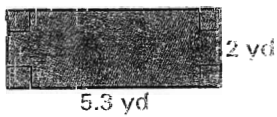
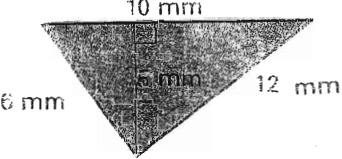
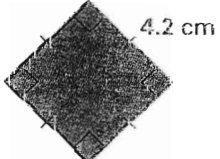
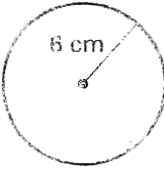
Area of a triangle =  $\frac{1}{2}$  (base)(height)

Area of a circle =  $\pi$  (radius)<sup>2</sup> where  $\pi = 3.14$

Perimeter = the distance around a figure

Circumference of a circle =  $\pi$  (diameter) where  $\pi = 3.14$

**Find the requested information:**

<p>1. area of:</p> 	<p>2. area of:</p> 
<p>3. area of:</p> 	<p>4. area of:</p> 
<p>5. perimeter of:</p> 	<p>6. perimeter of:</p> 
<p>7. perimeter of:</p> 	<p>8. circumference of:</p> 

**Solve the following word problems. (Draw a picture first)**

1. The width of a rectangle is one-fourth of its length. The area is  $64 \text{ m}^2$ . Find the length and width of the rectangle.


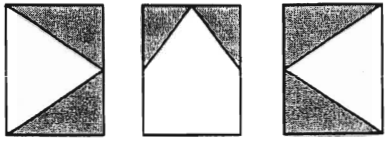


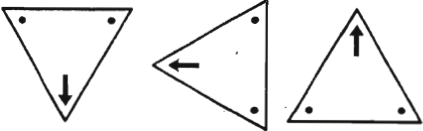
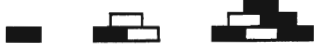
2. A square has a perimeter of 36 inches. What is the length of each side? What is the area of the square?

3. The length of a rectangle is 4 feet less than twice the width. The perimeter is 28 feet. Find the length and width of the rectangle.

4. The width of a rectangle is 4 inches more than the length. The area is  $45 \text{ in}^2$ . Find the length and the width of the rectangle.

5. The base of a triangle is 6 meters less than the height. The area is  $12 \text{ m}^2$ . Find the base and the height of the triangle. Round to the nearest tenth.

**Sketch the next figure you expect in the pattern:**

<p>1.</p> 	<p>2.</p> 
<p>3.</p> 	<p>4.</p> 
<p>5.</p> 	<p>6.</p> 

**Describe a pattern in the numbers. Write the next number you expect in the pattern.**

<p>1. 24, 12, 6, 3, .....</p>	<p>2. 3, 5, 9, 15, 23, .....</p>
<p>3. -4, -8, -16, -32, .....</p>	<p>4. 20, 19, 17, 14, .....</p>
<p>5. 1, 4, 9, 16, .....</p>	<p>6. 6, -2, -10, -18, .....</p>