

## Summer Assignment for Students Going Into **GEOMETRY**

8<sup>th</sup>, 9<sup>th</sup> or 10<sup>th</sup> grade

Directions:

1. Complete the following problems in this packet in the space provided. You may Not use a calculator. If you need more space, attach your work. Show all work for full credit.
2. If you need instruction or review of the topics in this packet, go to <http://www.khanacademy.org>. This site contains excellent videos that will re-teach and remind you how to go about the problems in this packet.
3. These problems should be a good review of the concepts that are necessary for you to know at the start of the course you are entering.
4. Bring this completed packet of problems, including your work, with you to math class on the first day of school. It will be collected and graded.
5. Be sure you understand this material thoroughly and be prepared to take a 30-point quiz on this material on the third day of school.

I. LINEAR EQUATIONS: Solve for the value of x.

a)  $7x = -35$

b)  $60 = 6x + 12$

c)  $\frac{4}{5}x = -20$

d)  $5 = -\frac{x}{3}$

e)  $\frac{2x-5}{3} = \frac{x+7}{2}$

f)  $12 = 3x - 9$

g)  $x + 9x = 5$

h)  $4x + 23 = 9x - 7$

i)  $(4x + 5) + (5x + 40) = 180$

j)  $2(4x + 4) = x + 1$

k)  $3(180 - x) = 2(90 - x)$

l)  $6(x - 2) - 2(x - 7) = 29$

2. RADICAL EXPRESSIONS. Simplify the following:

a)  $\sqrt{81}$

b)  $\sqrt{36 + 64}$

c)  $\sqrt{36} + \sqrt{64}$

d)  $9\sqrt{40}$

e)  $\sqrt{300}$

f)  $\sqrt{13^3}$

g)  $(\sqrt{21})^2$

h)  $5\sqrt{18}$

i)  $(2\sqrt{3})^2$

j)  $\frac{24}{\sqrt{3}}$

k)  $\frac{\sqrt{28}}{\sqrt{5}}$

l)  $(5\sqrt{6})(4\sqrt{2})$

m)  $12\sqrt{48} - 2\sqrt{27}$

n)  $5\sqrt{50} + 6\sqrt{125} + 7\sqrt{98} - 3\sqrt{20}$

3. RATIONAL EXPRESSIONS. Simplify the following:

a)  $\left(\frac{12}{35}\right)\left(\frac{22}{44}\right)$

b)  $\left(4\frac{2}{3}\right) + \left(2\frac{3}{16}\right)$

c)  $\left(\frac{13}{15}\right) + \left(\frac{11}{30}\right)$

d)  $\frac{5xy}{10x^2}$

e)  $\frac{9x - 6y}{3}$

4. QUADRATIC EQUATIONS. Solve by the method of your choice.

a)  $x^2 + 3^2 = 4^2$

b)  $x^2 + 5^2 = 10^2$

c)  $x^2 + 5^2 = (5\sqrt{2})^2$

d)  $x^2 - 7x - 18 = 0$

e)  $x^2 - 8x = 0$

f)  $x^2 - 144 = 25$

g)  $x^2 - 7x + 12 = 0$

h)  $x^2 = 3x + 4$

i)  $x(x + 5) = 14$

j)  $x^2 + 5x + 2 = 0$

k)  $2x^2 - x - 3 = 0$

l)  $x^2 - 4x + 1 = 0$

5. EVALUATING FORMULAS. Evaluate each of the following for the indicated values of the variables. Express your final answers in simplified forms.

a) Evaluate:  $\frac{x+5}{y-2}$  for  $x = -2$  and  $y = -4$

b) Evaluate:  $\frac{1}{3}x^2h$  when  $x = 4\sqrt{3}$  and  $h = 6$ .

c) Evaluate:  $\sqrt{(x-5)^2 + (y-3)^2}$  when  $x=1$  and  $y=0$ .

d) The area of a triangle is  $A = \frac{1}{2}bh$ . Find  $A$  when  $b=4$  and  $h=20$ .

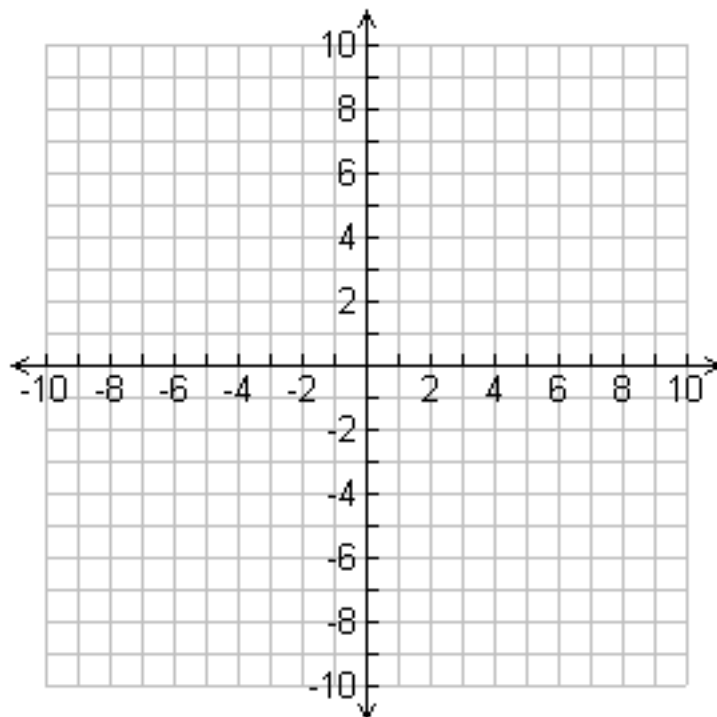
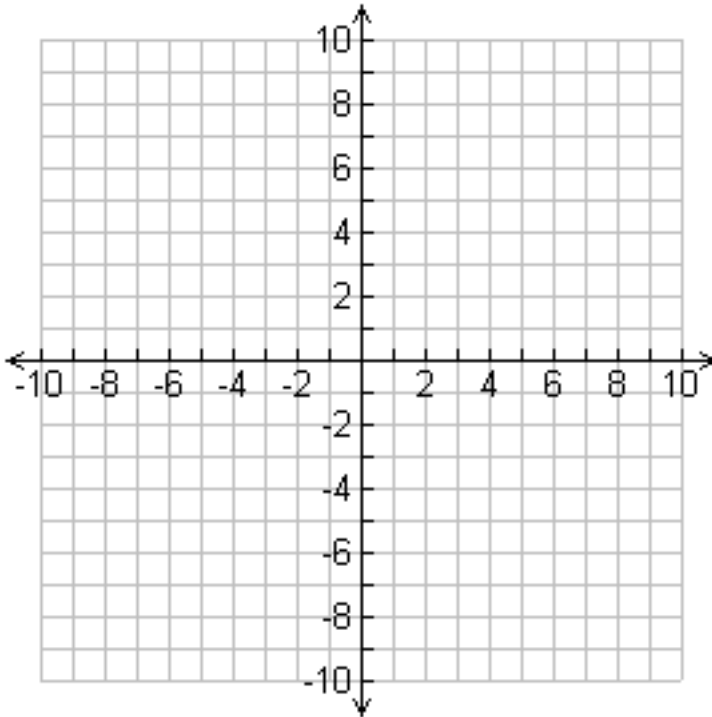
e) The area of a rectangle is  $A = bh$ . Find  $A$  when  $b = 3\sqrt{6}$  and  $h = 4\sqrt{3}$ .

f) Given  $a^2 + b^2 = c^2$ . Find  $c$  when  $a=15$  and  $b=20$ .

g) The area of a trapezoid is  $A = \frac{1}{2}h(a+b)$ . Find  $A$  when  $h=3$ ,  $a = 3\sqrt{2}$  and  $b = 7\sqrt{2}$ .

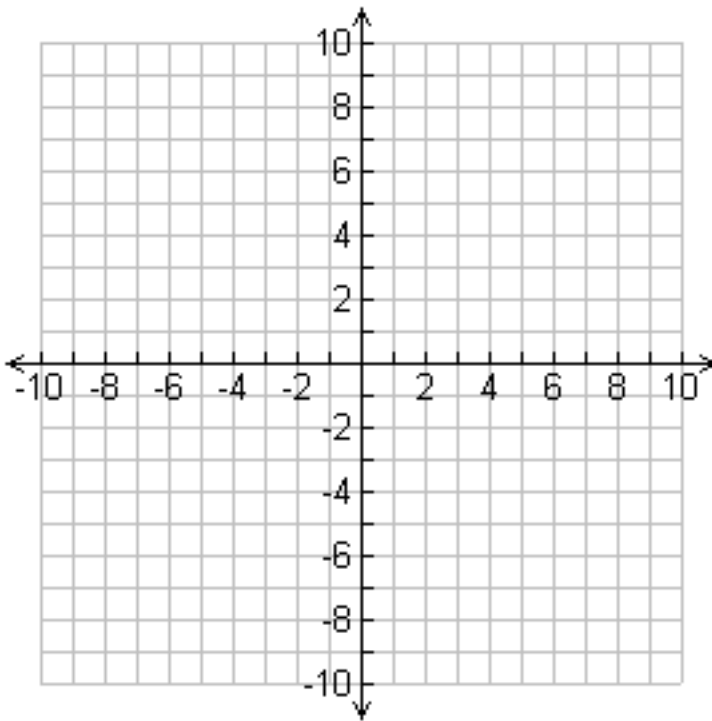
6. GRAPHING LINEAR EQUATIONS. Graph each of the following lines. Provide the coordinates of the x- and y-intercepts.

a)  $y=2x+3$



b)  $y = \frac{3}{5}x - 10$

c)  $2x+3y=12$



7. EQUATIONS OF LINES.

a) Find the slope of a line that passes through the points  $(-1,-8)$  and  $(-7,20)$ .

b) Write an equation of a line that passes through the point  $(3,9)$  and is parallel to the line  $y=5x-15$ .

c) Write an equation of a line that passes through the point  $(6,10)$  and is perpendicular to the line  $y+2x=8$ .



8. SYSTEMS OF EQUATIONS. Solve for the (x,y) coordinates of the intersection of the two lines.

a)  $y = 2x + 5$   
 $3x - y = 4$

b)  $x = 8 + 3y$   
 $2x - 5y = 8$

c)  $3x + y = 19$   
 $2x - 5y = -10$

d)  $2x + 3y = 4$   
 $5x + 4y = 3$