

POSNACK

S C H O O L

Geometry Honors Summer Assignment

Dear Parents/Students,

In the summertime, many necessary mathematical skills are lost due to the absence of daily exposure. The loss of skills may result in a lack of success and unnecessary frustration for students as they begin the new school year. The purpose of this math assignment is to set the stage for instruction for the new school year. Packets can be printed out or can be printed to OneNote. The completed packet is due on the first day of school during math class and will be worth 30 homework points. The packet is a review of previously taught concepts. If needed, additional help can be found at www.khanacademy.org. These skills are required to be successful in the upcoming year.

Thank you,

Fischer High School Math Team

A. You should be able to simplify expressions using the order of operations.

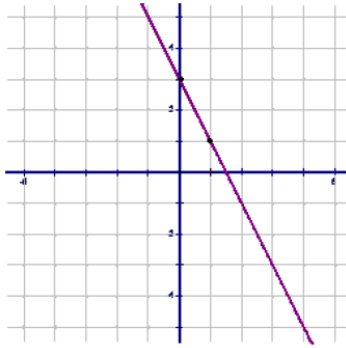
1) $-7(3 + 4) - 8$	2) $8 - (8 + 2) + 6 \div 2$
3) $[2^3 + (7 - 3)] - (4 - 2)$	4) $(3x + 7) - 11(2x + 5) - 13x$
5) $(5 + 8 \cdot 3)(9 - 3^2 + 7)(16 - 4^2)$	

B. You should be able to solve linear equations.

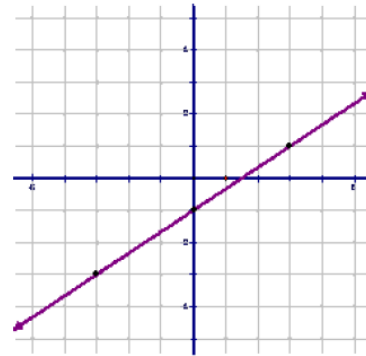
1) $-8 + 7x - 2 = 3x + 4 + 2x$	2) $-2 - 3(1 - x) = 4(-2x + 7)$
3) $-\frac{1}{2} - \frac{5}{6}x = \frac{3}{4}$	

C. You should be able to find the slope of a line.

1) Find the slope of the line depicted in the graph below.



2) Find the slope of the line depicted in the graph below.



3) Find the slope of the line passing through (2, 4) and (5, 3).

4) Find the slope of the line passing through (2, -8) and (-5, 4).

D. You should be able to write linear equations in slope intercept form.

Write the following equations in slope intercept form.

1) $3x - 4y = -12$

2) $x + 3y = 15$

3) $\frac{2}{5}y = \frac{3}{4}x + 2$

Write the slope-intercept form of the equation of a line with the given slope and passing through the given point.

4) $m = \frac{1}{4}, (6, -8)$

5) $m = -\frac{2}{3}, (-6, 1)$

Write the slope-intercept form of the equation of a line passing through the given points.

6) $(-2,4)$ $(-5,10)$

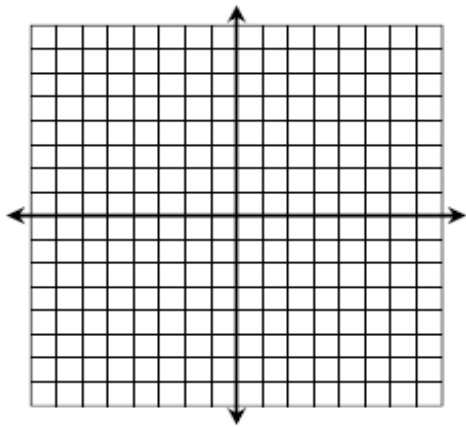
7) $(3,2)$ $(-9,2)$

8) Write the equation of a vertical line passing through $(-5,2)$.

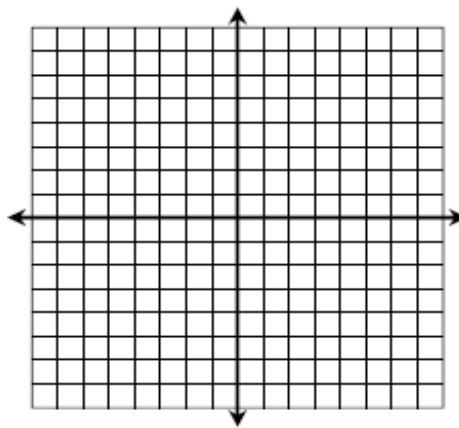
9) Write the equation of a horizontal line passing through the point $(1,8)$.

E. You should be able to graph linear equations.

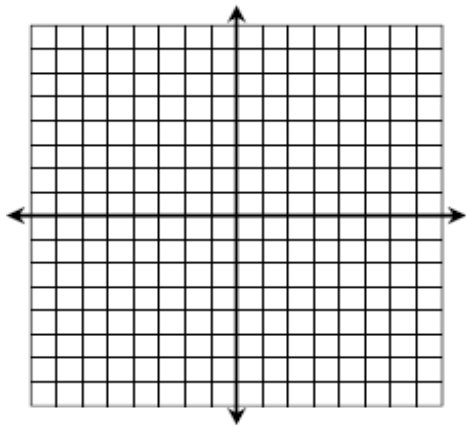
1) $y = 2x + 3$



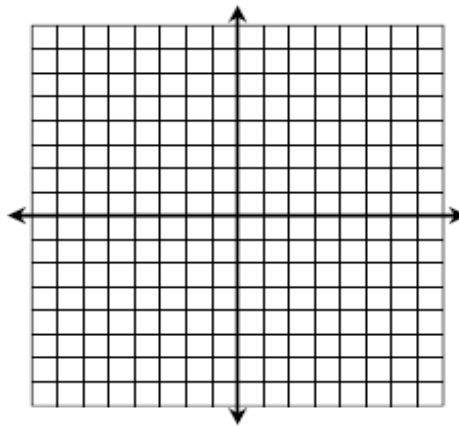
2) $y = \frac{1}{3}x - 4$



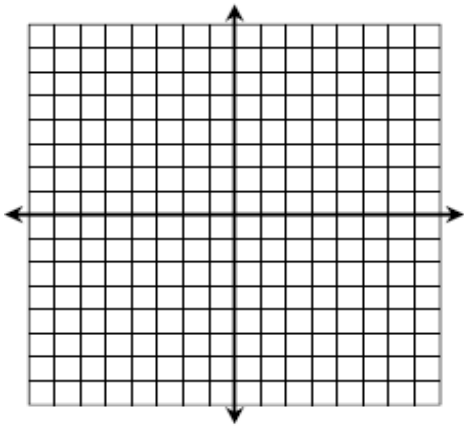
3) $2x + 3y = 12$



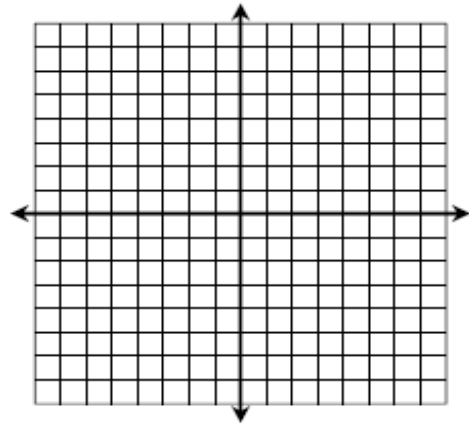
4) $-4x = 2y - 8$



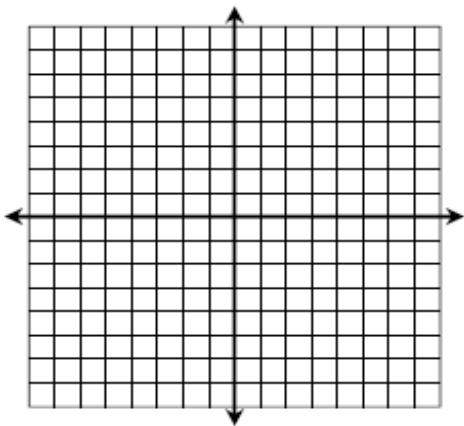
5) $y = -\frac{3}{2}x + 5$



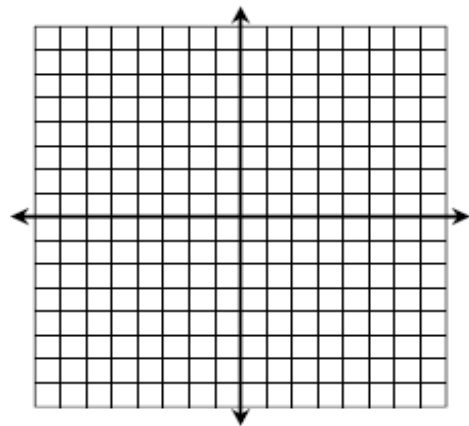
6) $y = x$



7) $y = 2$



8) $x = -3$



F. You should be able to work with quadratic expressions and equations.

Multiply.

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

2) $(2x + 3)(3x - 3)$

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

4) $(2x + 1)(2x - 1)$

Factor.

5) $x^2 - 7x - 18$

6) $p^2 - 5p - 14$

7) $m^2 - 9m + 8$	8) $x^2 - 16x + 63$
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Solve.

9) $x^2 + 4x + 4 = 0$	10) $x^2 = -18 - 9x$
11) $x^2 + x = 2$	12) $x^2 - 6x - 14 = -2x - 2$

G. You should be able to solve proportions.

1) $\frac{0.1}{2} = \frac{0.5}{x}$	2) $\frac{x+1}{4} = \frac{3}{4}$
3) $\frac{4}{6} = \frac{8}{x}$	4) $\frac{x}{21} = \frac{3}{63}$
5) $\frac{9}{y+1} = \frac{18}{54}$	6) $\frac{3-x}{4+x} = \frac{8}{48}$
7) $\frac{4x}{25} = \frac{85-x}{100}$	8) $\frac{x+8}{-3} = \frac{17-x}{-2}$
9) To make a model of the Guadalupe River bed, Herimie used 1 inch of clay for 5 miles of the actual river's length. His model river was 50 inches long. How long is the Guadalupe River?	10) Josh finished 24 math problems in one hour. At that rate, how many hours will it take him to complete 72 problems?

H. You should be able to simplify radicals.

1) $\sqrt{20}$	2) $\sqrt{40}$
3) $\sqrt{18}$	4) $\sqrt{68}$
5) $\sqrt{162}$	6) $\sqrt{108}$
7) $\sqrt{420}$	8) $\sqrt{275}$
9) $\sqrt{640}$	10) $\sqrt{704}$
11) $\sqrt{16b^4}$	12) $\sqrt{81c^5d^4}$
13) $\sqrt{124y^6w^7}$	14) $\sqrt{128c^9d}$
15) $\sqrt{5} \cdot \sqrt{10}$	16) $\sqrt{3x^3} \cdot 3\sqrt{3x^4}$
17) $4\sqrt{10} \cdot 3\sqrt{6}$	18) $\sqrt{6} \cdot 4\sqrt{24}$
19) $3\sqrt{5} \cdot \sqrt{5}$	20) $\sqrt{5} \cdot \sqrt{60}$
21) $\frac{\sqrt{9}}{\sqrt{18}}$	22) $\frac{\sqrt{8}}{\sqrt{24}}$

23) $\frac{\sqrt{x^6}}{\sqrt{y^4}}$	24) $\frac{\sqrt{100}}{\sqrt{121}}$
25) $\frac{\sqrt{75}}{\sqrt{3}}$	26) $\frac{8\sqrt{2}}{2\sqrt{8}}$
27) $\sqrt{\frac{3}{4}} \cdot \sqrt{\frac{4}{5}}$	28) $\sqrt{\frac{1}{7}} \cdot \sqrt{\frac{7}{11}}$

Simplify.

29) $8 + 3\sqrt{2}$	30) $\sqrt{12} - \sqrt{27}$
31) $\sqrt{27} - 2\sqrt{3}$	32) $\sqrt{20} + 2\sqrt{5} - 3\sqrt{5}$
33) $-5\sqrt{6} + 8\sqrt{6}$	34) $\sqrt{200} - 3\sqrt{2}$
35) $\sqrt{54} + \sqrt{24}$	36) $\sqrt{80} - \sqrt{20} + 3\sqrt{180}$

Evaluate each expression.

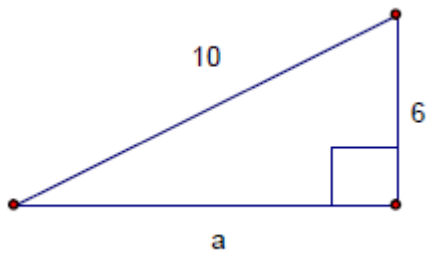
10) $\frac{1}{2}bh$ when $b = 18$ and $h = 2\sqrt{3}$	11) $\sqrt{a^2 + b^2}$ when $a = 12$ and $b = 5$
12) $\sqrt{l^2 + w^2 + h^2}$ when $l = 12$, $w = 8$ and $h = 9$	13) $\frac{1}{3}\pi r^2 h$ when $r = 5\sqrt{2}$ and $h = 6$

$$14) 2\pi r^2 + 2\pi rh \text{ when } r = 3\sqrt{2} \text{ and } h = 4\sqrt{2}$$

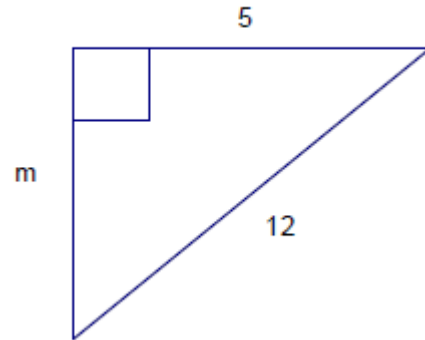
$$15) \frac{1}{2}h(b_1 + b_2) \text{ when } b_1 = 4, b_2 = 10, \text{ and } h = 5$$

I. You should be able to use the Pythagorean Theorem to find the missing side lengths of a right triangle.

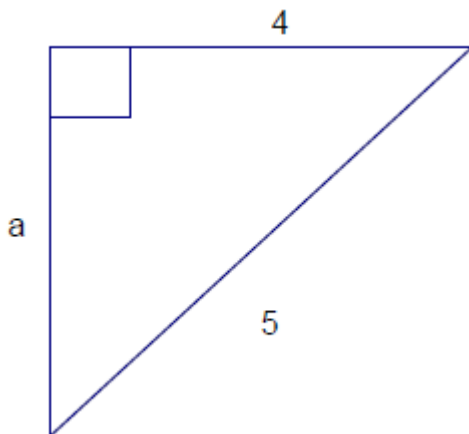
1)



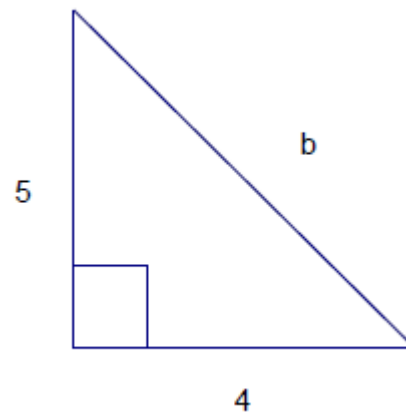
2)



3)



4)



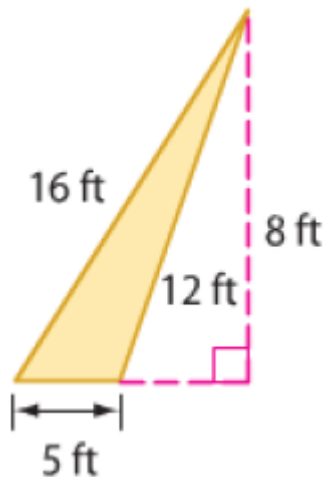
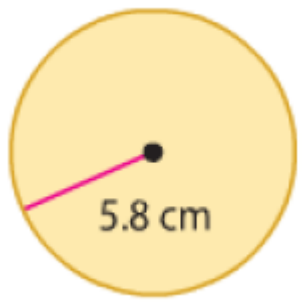


J. You should be able to find the distance between two points using the distance formula

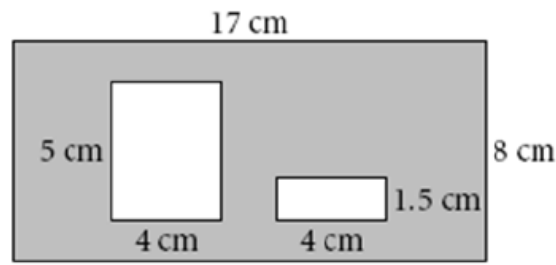
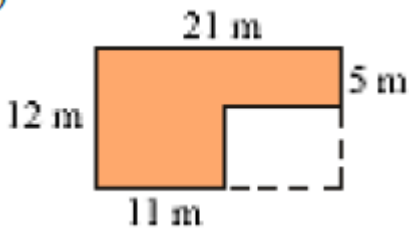
1) Find the distance between $A(-3,4)$ and $M(1,2)$.

2) Find the distance between $A(5,3)$ and $M(-1,4)$

K. You should be able to find the area and perimeter of triangles, rectangles, squares and circles.

1) 	2) 
3) 	4) 

Find the shaded area.

5) 	6) 
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L. You should be able to solve Systems of Equations.

Solve each system of equation using Elimination.

1) $2x - 3y = 2$ $5x - 3y = 14$	2) $11x - 3y = -39$ $6x + 12y = -19$
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$$\begin{aligned} 3) \quad x - y &= 39 \\ x + y &= 1785 \end{aligned}$$

$$\begin{aligned} 4) \quad 2y - 3x &= 51 \\ 11x - 7y &= -187 \end{aligned}$$

Solve each system of equation using Substitution.

$$\begin{aligned} 5) \quad 2x + y &= 21 \\ 7x - 2y &= 90 \end{aligned}$$

$$\begin{aligned} 6) \quad 2x - 4y &= 40 \\ 8x - 3y &= 82 \end{aligned}$$

$$\begin{aligned} 7) \quad 2x + 7y &= -20 \\ x - 5y &= -10 \end{aligned}$$

$$\begin{aligned} 8) \quad 2x + 3y &= 8 \\ 9x - 3y &= 14 \end{aligned}$$