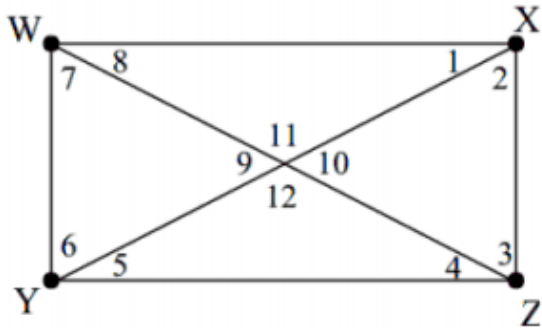


**Math 2 Final Review – Free Response**

**Name:** \_\_\_\_\_

1. WXYZ is a rectangle. Find each measure if  $m\angle 1 = 75^\circ$ .



$m\angle 2 =$

$m\angle 7 =$

$m\angle 3 =$

$m\angle 8 =$

$m\angle 4 =$

$m\angle 9 =$

$m\angle 5 =$

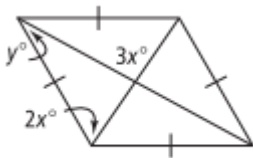
$m\angle 10 =$

$m\angle 6 =$

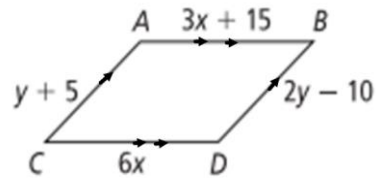
$m\angle 11 =$

**Find the value of the variables.**

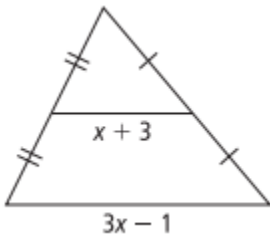
2.



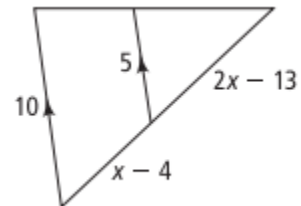
3.



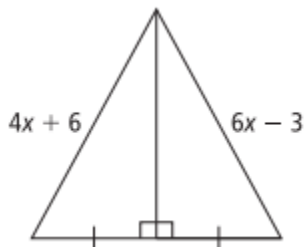
4.



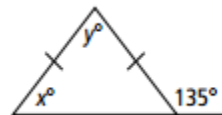
5.



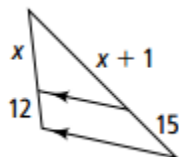
6.



7.

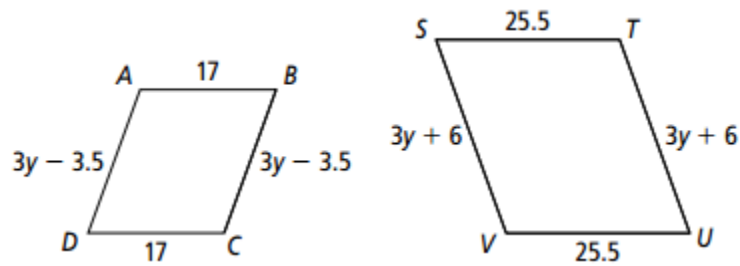


8.

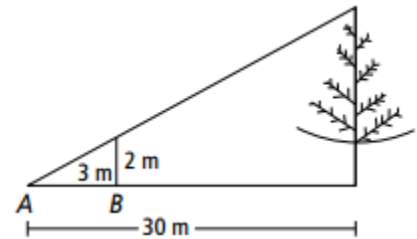


9. Give the value of the scale factor and find the value of the variable.

$$ABCD \sim TSVU$$

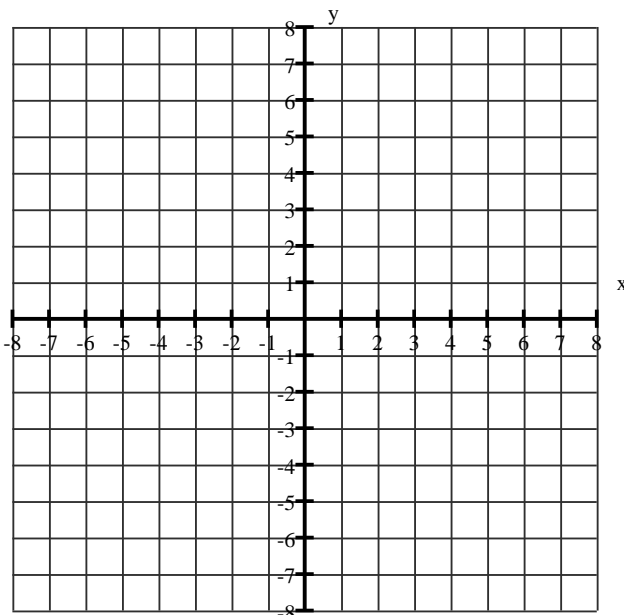


10. A stick is 2 m long is placed vertically at point  $B$ . The top of the stick is in line with the top of a tree as seen from point  $A$ , which is 3 m from the stick and 30 m from the tree. How tall is the tree?

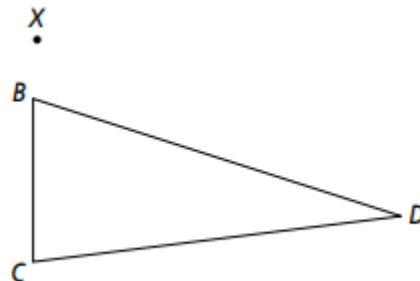


11. A 1.4 meter tall child is standing next to a flagpole. The child's shadow is 1.2 meters long. At the same time, the shadow of the flagpole is 7.5 meters long. How tall is the flagpole (round to the nearest tenth if necessary)?

12. Dilate the triangle  $M(2,3)$ ,  $A(1,-4)$  and  $T(-1,3)$  by a scale factor of 2.

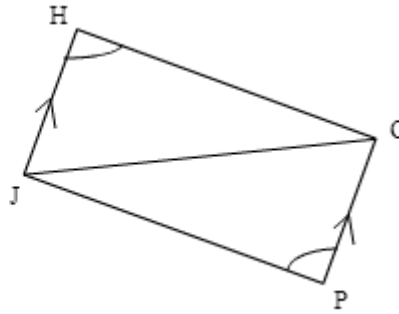


13. Dilate through  $X$  by a factor of 1.5



14.

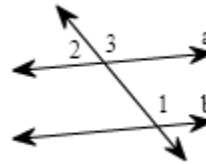
Given:  $\angle H \cong \angle P$ ,  $\overline{HJ} \parallel \overline{GP}$   
 Prove:  $\triangle HJG \cong \triangle PGJ$



Statements	Reasons
a. $\angle H \cong \angle P$	a.
b.	b. Given
c.	c. if $\parallel$ line, then Alternate Interior Angle are $\cong$ .
d.	d. Reflexive Property
e. $\triangle HJG \cong \triangle PGJ$	e.

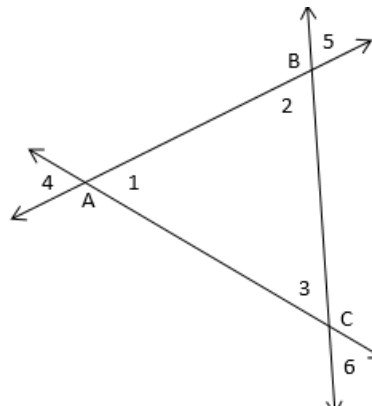
15.

Given:  $\angle 2$  and  $\angle 1$  are supplementary.  
 Prove:  $a \parallel b$



Statements	Reasons
a. $\angle 2$ and $\angle 1$ are supplementary	a.
b.	b. Linear pairs are supplementary
c.	c. If two angles are supplementary to the same angle then they are $\cong$ .
d.	d.

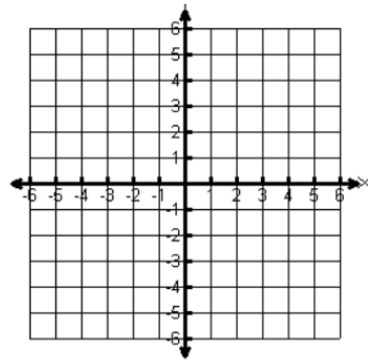
16. Given:  $\overline{AC} \cong \overline{BC}$   
 Prove:  $\angle 4 \cong \angle 5$



Statements	Reasons
a. $\overline{AC} \cong \overline{BC}$	a.
b. $\triangle ABC$ is isosceles	b.
c.	c. Base angle of an isosceles triangle are $\cong$ .
d. $\angle 1 \cong \angle 3$	d.
e.	e. Transitive Property
f.	f. Vertical angles are $\cong$ ,
g. $\angle 4 \cong \angle 5$	g.

17. Graph the piecewise function, then evaluate for the given function values.  
**Graph the piecewise function, then evaluate for the given function values.**

$$f(x) = \begin{cases} -x, & -4 \leq x < -2 \\ x-3, & -2 \leq x < 1 \\ x^2-2, & x \geq 1 \end{cases}$$



Evaluate:

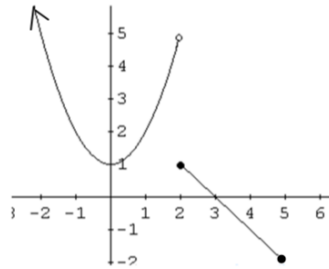
18.  $f(1) = \underline{\hspace{2cm}}$

19.  $f(-4) = \underline{\hspace{2cm}}$

20.  $f(0) = \underline{\hspace{2cm}}$

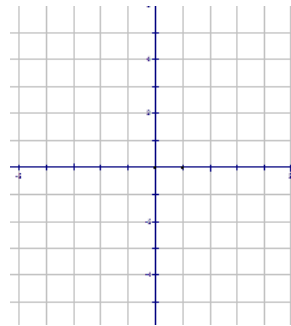
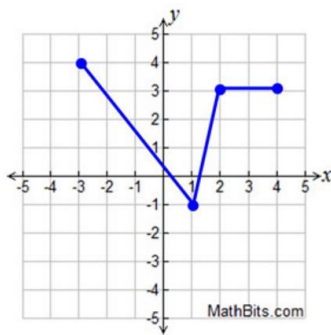
21. Write the piecewise function for the graph below.

$$f(x) = \left\{ \begin{array}{l} \\ \\ \\ \end{array} \right.$$



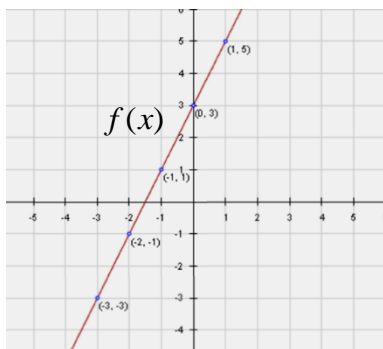
Let  $f(x)$  be the function represented by the graph below. Perform each indicated transformation and graph the new function on the graph provided.

22.  $-f(x+2)-1$

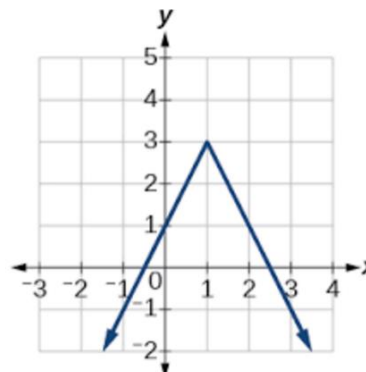


Perform the indicated operation if  $g(x) = 5 - 2x$ .

23.  $f + g$



24. Write the equation of the graph below.



25. Write the equation of a quadratic function that is reflected across the x axis, has a horizontal shift right 1, and a vertical shift down 4.

Given:  $f(x) = 2x + 3$        $g(x) = -3x^2$        $k(x) = x^2 - 3x + 1$

Find the following:

26.  $f(-4)$

27.  $(f \circ g)(-1)$

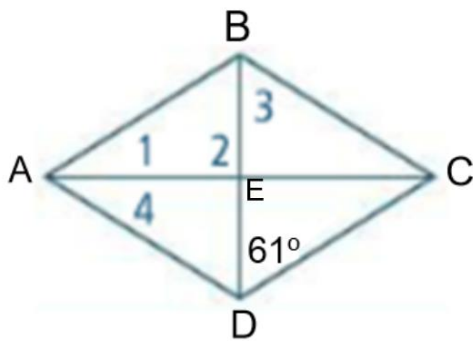
28.  $\left(\frac{g}{k}\right)(0)$

29.  $(k - f)(x)$

30.  $(f \cdot g)(6)$

31.  $f(g(x))$

32. The quadrilateral is a Rhombus, find the measurements below given  $\overline{EB} = 8$  and  $\overline{AB} = 14$ .



a)  $\overline{DC} =$

b)  $m\angle 3 =$

c)  $\overline{AE} =$

d)  $m\angle 1 =$

e)  $m\angle 2 =$

f)  $m\angle 4 =$

g)  $\overline{DE} =$

h)  $\overline{AD} =$

33. Are the figures similar? If so, describe the similarity transformation(s) that maps one to the other. If not, explain why they are not similar.

