

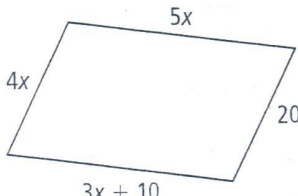
# Lines and Angles Unit Review

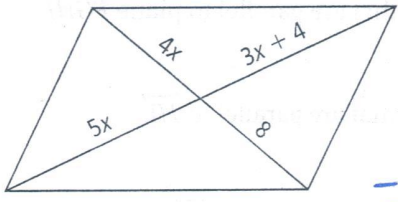
Name: \_\_\_\_\_

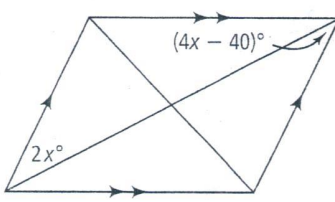
**KEY!**

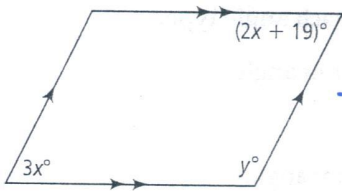
## Secondary Math 2 Honors

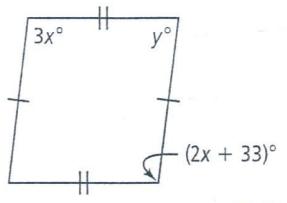
Solve for each variable in parallelograms 1-7.

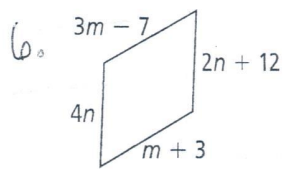
1.   $4x = 20$   
 $\boxed{x = 5}$   
 OR  
 $5x = 3x + 10$   
 $-3x \quad -3x$   
 $2x = 10$   
 $\boxed{x = 5}$

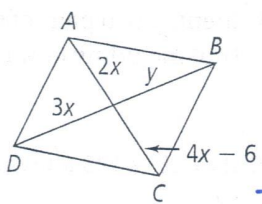
2.   $4x = 8$   
 $\boxed{x = 2}$   
 OR  
 $5x = 3x + 4$   
 $-3x \quad -3x$   
 $2x = 4$   
 $\boxed{x = 2}$

3.   $2x = 4x - 40$   
 $-4x \quad -4x$   
 $-2x = -40$   
 $\boxed{x = 20^\circ}$

4.   $3x = 2x + 19$   
 $-2x \quad -2x$   
 $\boxed{x = 19^\circ}$

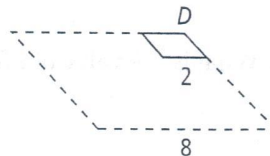
5.   $3x = 2x + 33$   
 $-2x \quad -2x$   
 $\boxed{x = 33^\circ}$

6.   $4n = 2n + 12$   
 $-2n \quad -2n$   
 $2n = 12$   
 $\boxed{n = 6}$   
 $3m - 7 = m + 3$   
 $-m \quad -m$   
 $2m - 7 = 3 + 1$   
 $+1$   
 $2m = 10$   
 $\boxed{m = 5}$

7.   $3x = y$   
 $2x = 4x - 6$   
 $-4x \quad -4x$   
 $-2x = -6$   
 $\boxed{x = 3}$   
 $y = 3(3)$   
 $\boxed{y = 9}$

8. The solid-line figure is a dilation of the dashed-line figure with center of dilation  $D$ . Is the dilation an enlargement or a reduction? What is the scale factor of the dilation?

reduction by  $1/4$

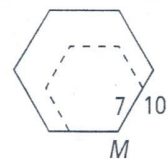


9. Given  $P(2, 5)$ , what are the coordinates of  $D_5(P)$ ?  $P'(10, 25)$

10. Given  $P(10, -20)$ , what are the coordinates of  $D_{0.2}(P)$ ?  $P'(2, -4)$

11. The solid-line figure is a dilation of the dashed-line figure with center of dilation  $M$ . Is the dilation an enlargement or a reduction? What is the scale factor of the dilation?

enlargement by  $10/7$



12. Given  $P(3, 11)$ , what are the coordinates of  $D_3(P)$ ?  $P'(9, 33)$

13. Given  $P(2, -4)$ , what are the coordinates of  $D_4(P)$ ?  $P'(8, -16)$

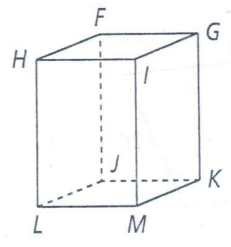
# Chapter 6 Test Review

Form K

## Do you know HOW?

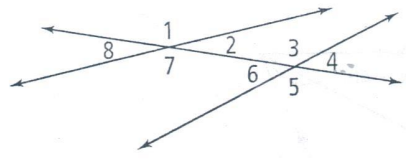
Identify the following in the diagram at the right.

- two lines that are parallel to plane  $FGHI$   
 $\overline{LM}, \overline{MK}, \overline{JK}, \overline{JL}$
- two lines that are parallel to  $\overleftrightarrow{HL}$   
 $\overline{FJ}, \overline{GK}, \overline{IM}$
- two lines that are skew to  $\overleftrightarrow{FG}$   
 $\overline{IM}, \overline{HL}, \overline{MK}, \overline{JL}$



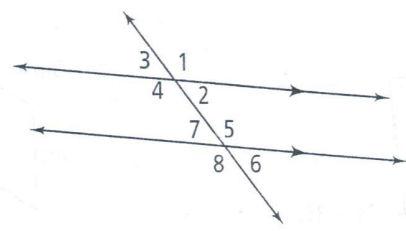
Use the diagram at the right for Exercises 4-5.  
Name one pair of each angle type.

- same-side interior angles  
 $\angle 2 \text{ \& } \angle 3, \angle 7 \text{ \& } \angle 6$
- alternate exterior angles  
 $\angle 1 \text{ \& } \angle 5, \angle 4 \text{ \& } \angle 8$



Use the diagram at the right for Exercises 6-7.

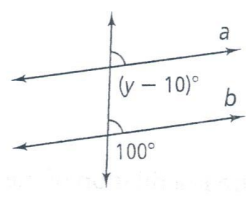
- Identify two pairs of supplementary angles (not including linear pairs).  
 $\angle 2 \text{ \& } \angle 5, \angle 4 \text{ \& } \angle 7$
- If  $m\angle 8 = 125$  and  $m\angle 1 = 5x$ , what is the value of  $x$ ?



$$5x = 125$$

$$\boxed{x = 25}$$

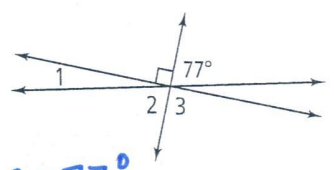
- Which theorem or postulate proves that  $a \parallel b$  in the figure to the right?  
Corresponding Angles
- What is the value of  $y$  for which  $a \parallel b$  in Exercise 8?



$$y - 10 = 100$$

$$\boxed{y = 110}$$

- Find  $m\angle 1, m\angle 2,$  and  $m\angle 3$ .

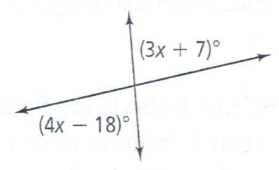


$$\angle 2 = 77^\circ$$

$$\angle 1 = 13^\circ$$

$$\angle 3 = 90^\circ$$

- What is the value of  $x$ ?



$$3x + 7 = 4x - 18$$

$$\begin{array}{r} 3x + 7 = 4x - 18 \\ -3x \quad -3x \\ \hline 7 = x - 18 \\ +18 \quad +18 \\ \hline \boxed{x = 25} \end{array}$$

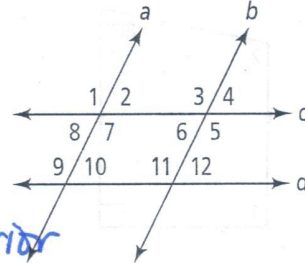
# Chapter 6 Test Review

Form G

## Do you know HOW?

Use the figure for Exercises 1-10.

For Exercises 1-3, suppose  $a \parallel b$  and  $c \parallel d$ .



1.  $\angle 2$  and  $\angle 10$  are what kind of angles? *corresponding*
2.  $\angle 3$  and what angle are alternate interior angles?  *$\angle 7$*
3.  $\angle 9$  and  $\angle 8$  are what kind of angles? *same-side interior*
4. Which angle could you show is congruent to  $\angle 11$  to prove  $a \parallel b$ ?  *$\angle 9$*
5. What relationship between  $\angle 6$  and  $\angle 11$  shows  $c \parallel d$ ? *same-side interior*

For Exercises 6-10, suppose  $a \parallel b$  and  $c \parallel d$ .

6. If  $m\angle 6 = 50$ , then find  $m\angle 11$ .  *$m\angle 11 = 180 - 50 = 130^\circ$*
7. If  $m\angle 2 = 70$ , then find  $m\angle 6$ .  *$m\angle 6 = 70^\circ$*
8. If  $m\angle 1 = 130$ , then find  $m\angle 5$ .  *$m\angle 5 = 130^\circ$*
9. If  $m\angle 7 = 110$ , then find  $m\angle 10$ .  *$m\angle 10 = 180 - 110 = 70^\circ$*
10. If  $m\angle 4 = 45$ , then find  $m\angle 12$ .  *$m\angle 12 = 45^\circ$*

Name the property that justifies each statement.

11.  $m\angle ABC = m\angle DEF$  and  $m\angle DEF = m\angle ABC$  *Symmetric Prop.*
12.  $AB = CD$ ,  $CD = EF$ . Therefore,  $AB = EF$ . *Transitive Prop.*
13.  $x + 7 = 5$ ;  $x + 7 - 7 = 5 - 7$  *Subtraction Prop.*
14.  $x = y$ ; if  $x = 18$ , then  $y = 18$ . *Substitution Prop.*
15.  $\angle A \cong \angle A$  *Reflexive Prop.*



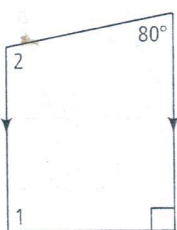


# Chapter 6 Test (continued) Review

Form G

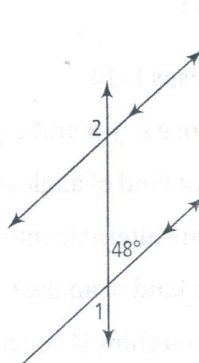
Find the measures for angles 1 and 2.

16.



$$\begin{aligned} \angle 2 + 80^\circ &= 180^\circ \\ \angle 2 &= 100^\circ \\ \angle 1 + 90^\circ &= 180^\circ \\ \angle 1 &= 90^\circ \end{aligned}$$

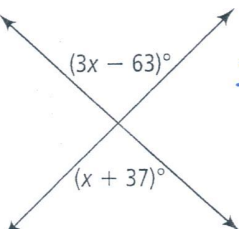
17.



$$\begin{aligned} \angle 1 &= 48^\circ \\ \angle 1 + \angle 2 &= 180 \\ 48^\circ + \angle 2 &= 180 \\ \angle 2 &= 132^\circ \end{aligned}$$

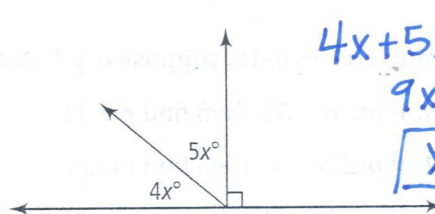
Find the value of the variable.

18.



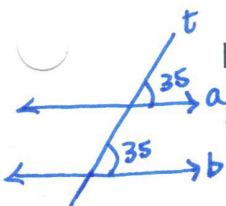
$$\begin{aligned} 3x - 63 &= x + 37 \\ -x & \quad -x \\ \hline 2x - 63 &= 37 \\ + 63 & \quad + 63 \\ \hline 2x &= 100 \\ x &= 50 \end{aligned}$$

19.



$$\begin{aligned} 4x + 5x &= 90^\circ \\ 9x &= 90^\circ \\ x &= 10^\circ \end{aligned}$$

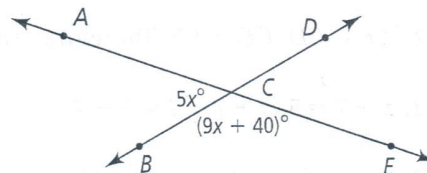
Do you UNDERSTAND?



20. Reasoning Suppose a line intersecting two lines  $a$  and  $b$  forms a  $35^\circ$  angle with each line. What are the possible relationships between lines  $a$  and  $b$ ? Explain. (Hint: Draw a picture.)

$a \parallel b$

21. Reasoning Use the diagram at the right to complete the proof that  $m\angle ACD = 130$  by filling in the missing steps.

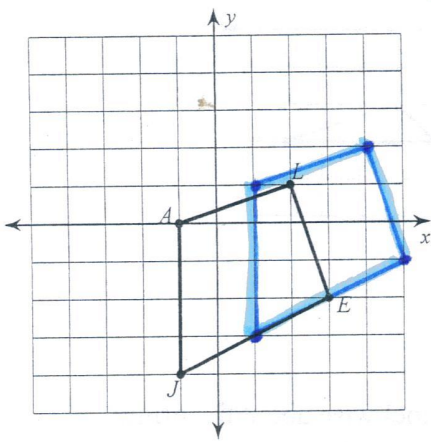


Statements	Reasons
1) $m\angle ACB + m\angle BCE = 180$	1) ? <u>Supplementary Angles</u>
2) $5x + 9x + 40 = 180$	2) ? <u>Substitution</u>
3) $14x + 40 = 180$	3) Combine like terms
4) $14x = 140$	4) ? <u>Subtraction</u>
5) $x = 10$	5) Division Property of Equality
6) $m\angle BCE = 9(10) + 40 = 130$	6) Substitution Property
7) $\angle BCE \cong \angle ACD$	7) ? <u>Vertical Angles</u>
8) $m\angle ACD = 130$	8) Substitution Property

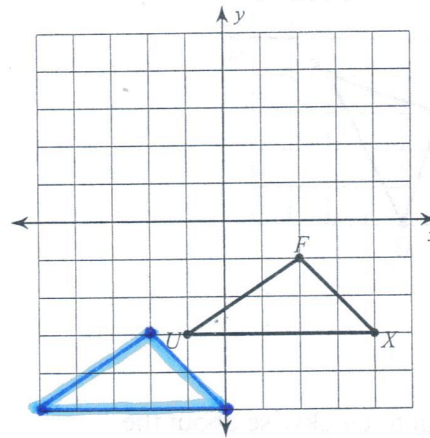
Transformations Review

Graph the image of the figure using the transformation given.

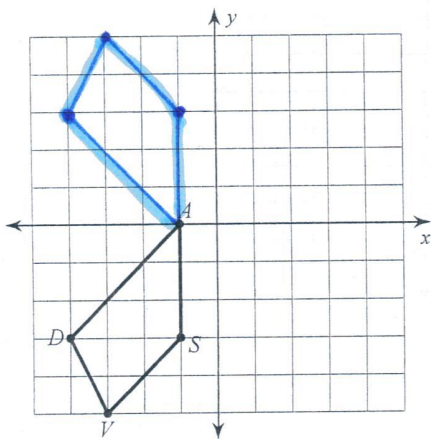
1) translation:  $(x, y) \rightarrow (x + 2, y + 1)$   
*Right 2*  
*up 1*



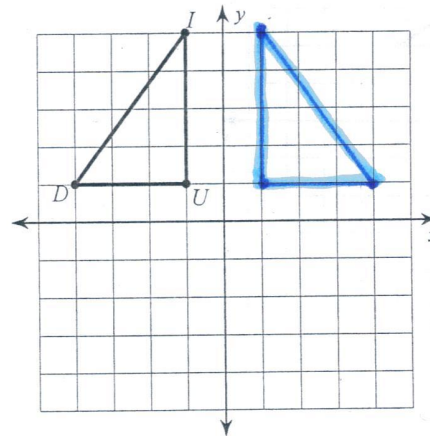
2) translation:  $(x, y) \rightarrow (x - 4, y - 2)$   
*Left 4*  
*Down 2*



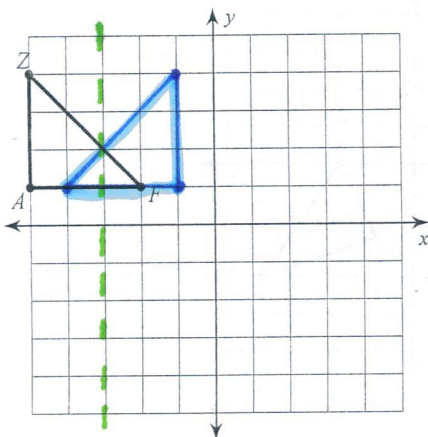
3) reflection across the x-axis



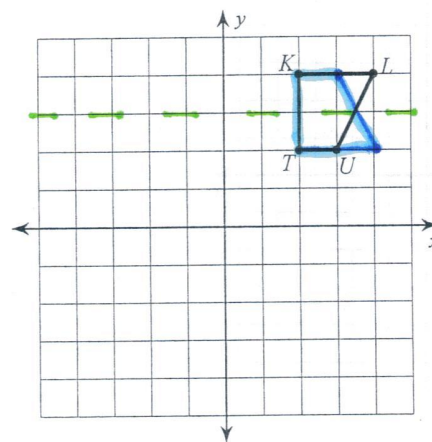
4) reflection across the y-axis



5) reflection across  $x = -3$

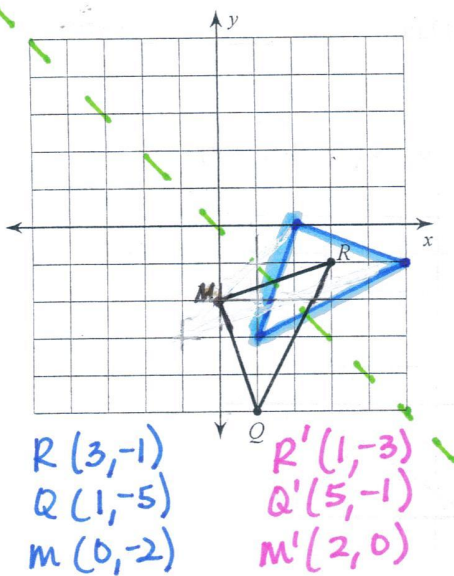


6) reflection across  $y = 3$

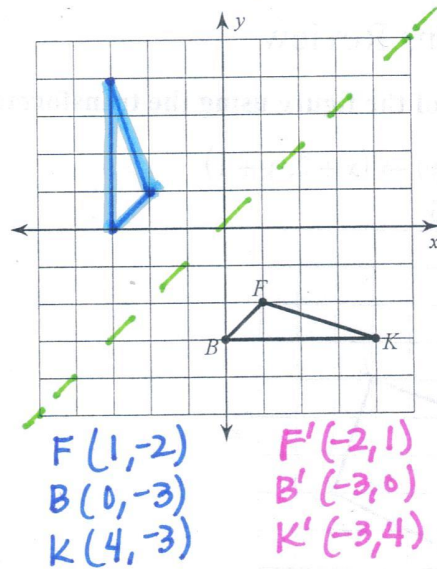


\*

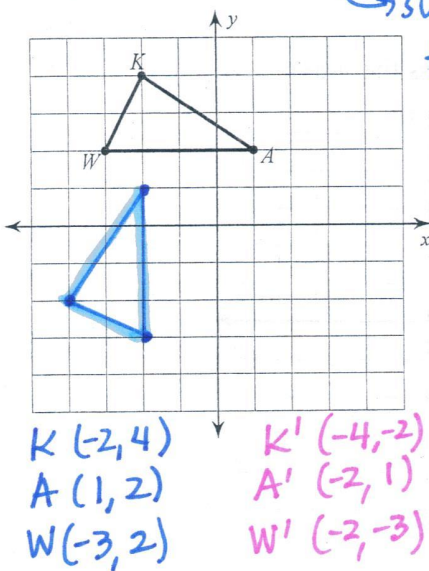
7) reflection across  $y = -x$



8) reflection across  $y = x$

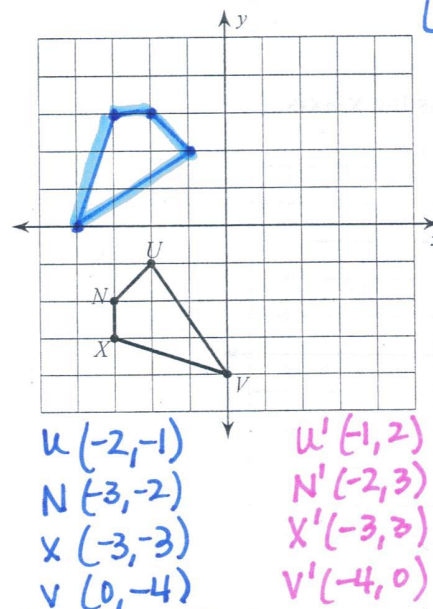


9) rotation  $90^\circ$  counterclockwise about the origin



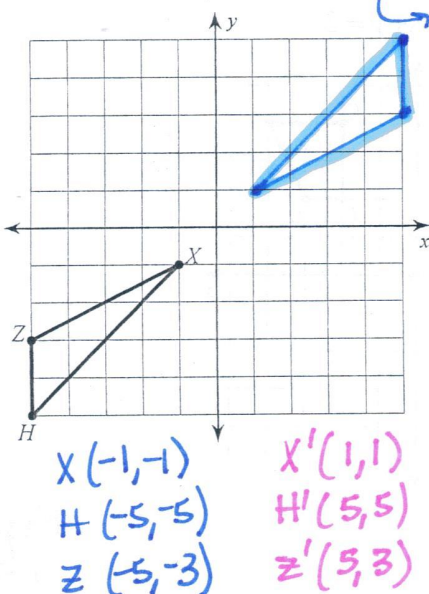
↪ switch order  
then change  
sign of x

10) rotation  $90^\circ$  clockwise about the origin



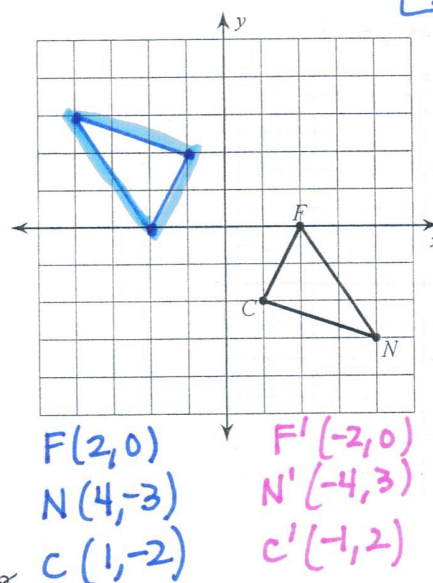
↪ switch order,  
then change  
sign of y

11) rotation  $180^\circ$  about the origin



↪ change the  
signs of  
x & y

12) rotation  $180^\circ$  about the origin



↪ change signs of  
x & y