

**Chapter 1 Study Guide**

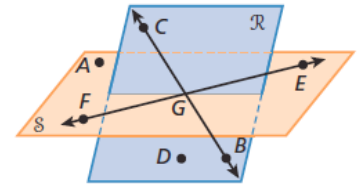
*Geometry Semester 1 Final Review*

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

Vocab:

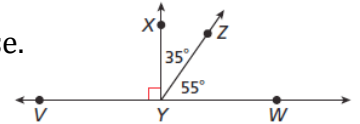
- |                        |                        |                  |
|------------------------|------------------------|------------------|
| • Adjacent angles      | • Supplementary angles | • Linear pair    |
| • Angle bisector       | • Congruent            | • Midpoint       |
| • Collinear            | • Coplanar             | • Reflection     |
| • Complementary angles | • Hypotenuse           | • Transformation |
|                        | • Image & preimage     | • Translation    |

- Name each of the following:
  - Four coplanar points
  - Line containing  $B$  and  $C$
  - Plane that contains  $A, G,$  and  $E$



- $Y$  is between  $X$  and  $Z$ .  $XY = 13.8$ , and  $XZ = 21.4$ . Find  $YZ$ .
- $U$  is the midpoint of  $\overline{TV}$ ,  $TU = 3x + 4$  and  $UV = 5x - 2$ . Find  $TU, UV,$  and  $TV$ .

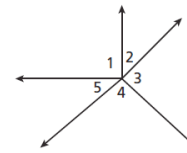
- Classify each of the five possible angles as acute, right, or obtuse.



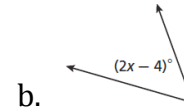
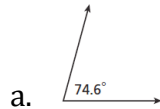
- $\overline{NP}$  bisects  $m\angle MNQ$ ,  $m\angle MNP = (6x - 12)^\circ$ , and  $m\angle PNQ = (4x + 8)^\circ$ .
  - Draw a sketch of the angles
  - Find  $m\angle MNQ$ .

- Tell whether the angles are only adjacent, adjacent and form a linear pair, or not adjacent.

- $\angle 1$  and  $\angle 2$
- $\angle 3$  and  $\angle 4$
- $\angle 2$  and  $\angle 5$



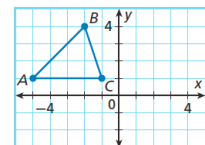
- Find the measure of the complement and the supplement of each angle



- Find the midpoint of  $\overline{AB}$  with  $A(3,2)$  and  $B(-1, 4)$ .

- Use the Pythagorean Thrm and the distance formula to find the distance between  $X(-2,4)$  and  $Y(6,1)$ .

- Use the translation  $(x, y) \rightarrow (x + 3, Y - 3)$ . Find the new set of coordinates and sketch.

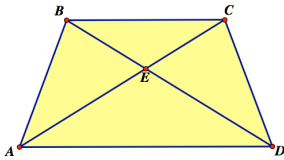


## Constructions and Proofs -- Study Guide

Given:  $\overline{AC} \cong \overline{DB}$ ,

$\angle DAC \cong \angle ADB$

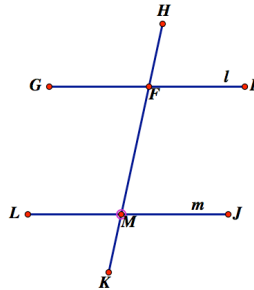
Prove:  $\triangle DAC \cong \triangle ADB$



Given:  $m \parallel l$ , and

$\angle LMK = 60$

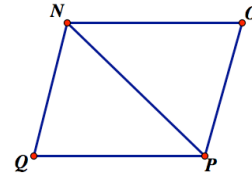
Prove:  $m\angle GFH = 120$



Given:  $\overline{NO} \parallel \overline{QP}$

and  $\overline{NO} \cong \overline{QP}$

Prove:  $\overline{NQ} \cong \overline{OP}$



Constructions:

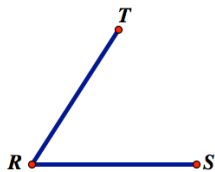
1. Copy  $\overline{RS}$

List the steps:



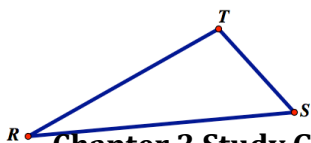
2. Copy  $\angle TRS$

List the steps:



3. Copy  $\triangle RTS$

List the steps:



4. Bisect  $\overline{UV}$

a. find the midpoint

List the steps:

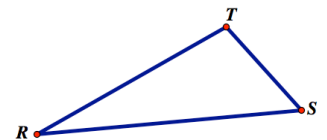
b. Perpendicular bisector

List the steps:



5. Construct an angle bisector for  $\triangle RTS$  at  $\angle TRS$

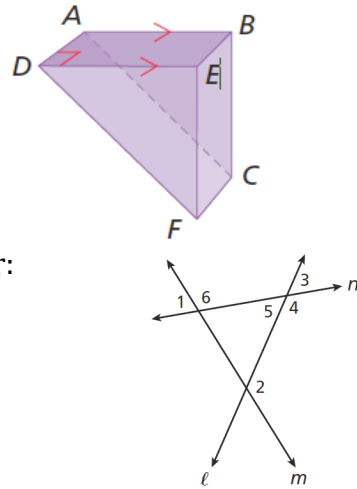
List the steps:



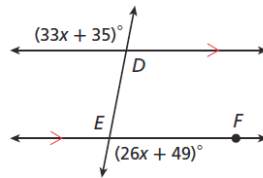
Vocab:

- Alternate exterior angles
- Alternate interior angles
- Corresponding angles
- Corresponding sides
- Parallel lines
- Distance from a point to a line
- Perpendicular bisector
- Perpendicular lines
- Point-slope form (linear equation)
- Rise/run
- Same-side interior angles
- Skew lines
- Slope
- Slope-intercept form (linear equation)
- Transversal

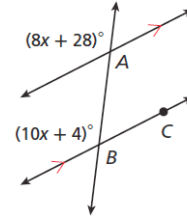
1. Identify each of the following:
  - a. A pair of skew segments
  - b. A pair of parallel segments
  - c. A pair of perpendicular segments
  - d. A pair of parallel planes
2. Identify the transversal and classify each angle pair:
  - a.  $\angle 5$  and  $\angle 2$
  - b.  $\angle 6$  and  $\angle 3$
  - c.  $\angle 2$  and  $\angle 4$
  - d.  $\angle 1$  and  $\angle 2$



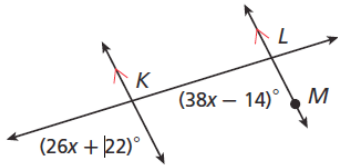
3. Find  $\angle DEF$



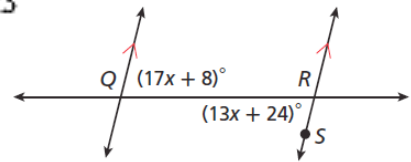
4. Find  $\angle ABC$



5. Find  $\angle KLM$

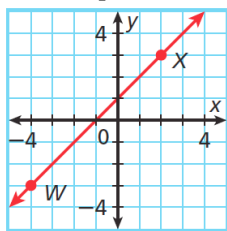


6. Find  $\angle QRS$

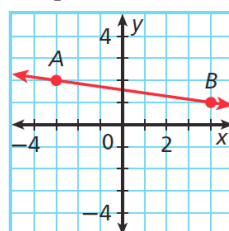


Use the slope formula to determine the slope of the functions graphed below.

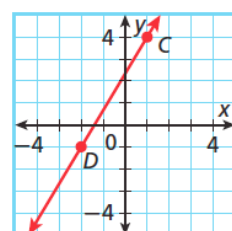
7.



8.



9.



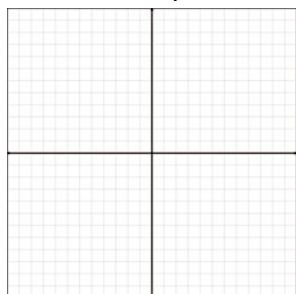
Write the equation of each line in the given form.

11. The line with slope  $-\frac{2}{3}$  through (3, -1) in point-slope form.

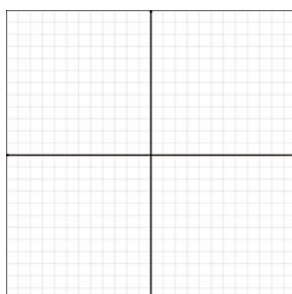
12. The line through (-2, 2) and (4,-1) in slope-intercept form.

Graph each line:

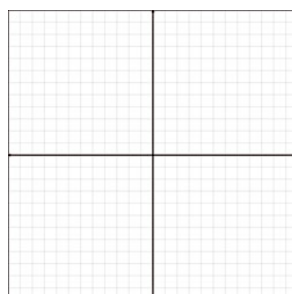
13.  $y = -\frac{3}{4}x + 2$



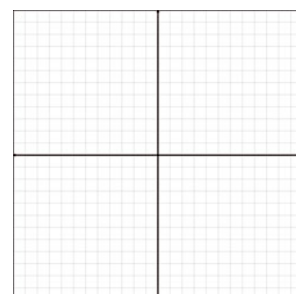
14.  $y + 4 = -3(x + 2)$



15.  $y = 2$



16.  $x = -1$



Use slopes to determine if the lines are parallel, perpendicular, or neither.

17.  $\overline{EF}$  and  $\overline{GH}$  for E(8,2), F(-3, 4), G(6, 1), and H(-4, 3)

18.  $\overline{JK}$  and  $\overline{LM}$  for J(4,3), K(-4, -2), L(5,6), and M(-3, 1)

## Chapter 12 Study Guide

Vocab:

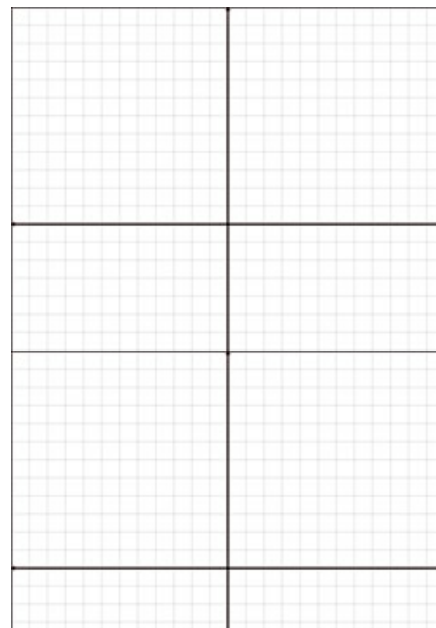
- Glide reflection
- Symmetry
- Isometry
- Line of symmetry
- Reduction
- Reflection
- Rotational symmetry
- Tessellation
- Translation symmetry

1. Reflect the figure with the given vertices across the given line.

a. E(-3, 2), F(0,2), G(-2, 5); reflect across x-axis.

b. P(2,-2), Q(4, -2), R(3, -4); reflect across  $y = x$ .

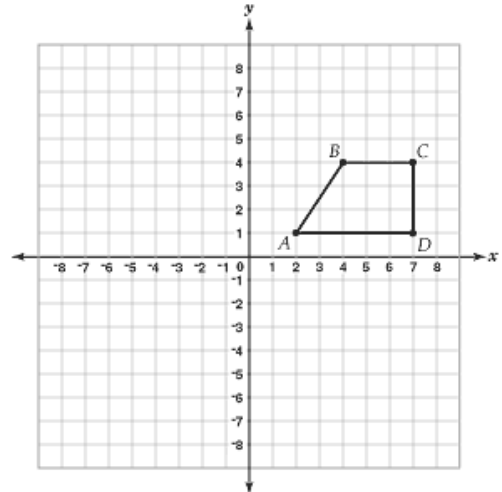
2. Translate the figure with the given vertices along the given vector.



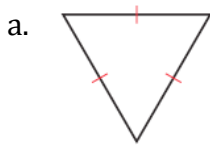
a.  $R(1, -1)$ ,  $S(1, -3)$ ,  $T(4, -3)$ ,  $U(4, -1)$ ;  
translate  $\{-5, 2\}$ .

b.  $M(1, 4)$ ,  $N(4,4)$ ,  $P(3,1)$ ;  
translate  $\{3, 3\}$ .

3. Using the diagram below, reflect quadrilateral ABCD over the line  $y = x$ . Label the vertices of the image.



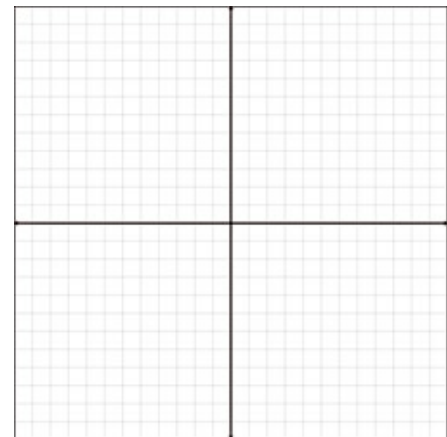
4. Tell if each figure below has rotational symmetry. If so, state the angle of rotational symmetry and the order of symmetry.



5. Draw the image of the figure with the given vertices under a dilation centered at the origin using the scale factors below:  $R(0,0)$ ,  $S(4,4)$ , and  $T(4, -4)$

a. Scale factor of 2

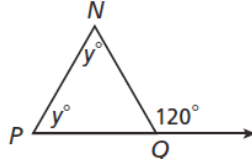
b. Scale factor of  $1/2$ .



Vocab:

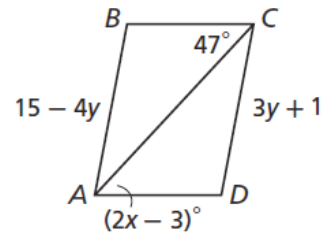
- acute triangle
- exterior angle
- right triangle
- base
- interior angle
- scalene triangle
- base angle
- isosceles triangle
- obtuse triangle
- PCTC

1. Find  $m\angle N$  using the figure at right.

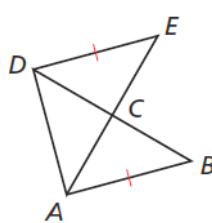


2. In  $\triangle LMN$ ,  
 $m\angle L = 8x^\circ$ ,  $m\angle M = (2x + 1)^\circ$ ,  
 and  $m\angle N = (6x - 1)^\circ$ .  
 a. Sketch the triangle  
 b. Find  $m\angle N$

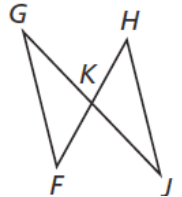
3.  $\triangle ABC \cong \triangle CDA$   
 a. find  $x$   
 b. find  $CD$



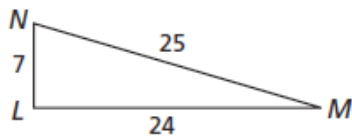
4. Given:  $\overline{AB} \cong \overline{DE}$ ,  
 $\overline{DB} \cong \overline{AE}$   
 Prove:  $\triangle ADB \cong \triangle DAE$



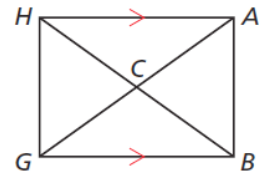
5. Given:  $\overline{GJ}$  bisects  $\overline{FH}$ ,  
 and  $\overline{FH}$  bisects  $\overline{GJ}$ .  
 Prove:  $\triangle FGK \cong \triangle HJK$



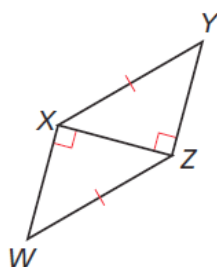
6. Show that  $\triangle LMN \cong \triangle PQR$  when  $y = 25$ .



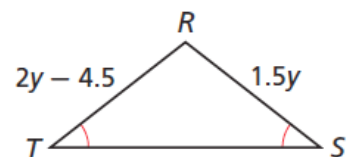
7. Given:  $C$  is the midpoint  
 of  $\overline{AG}$ .  
 $\overline{HA} \parallel \overline{GB}$   
 Prove:  $\triangle HAC \cong \triangle BGC$



8. Given:  $\overline{WX} \perp \overline{XZ}$ ,  
 $\overline{YZ} \perp \overline{ZX}$ ,  
 $\overline{WZ} \cong \overline{YX}$   
 Prove:  $\triangle WZX \cong \triangle YXZ$



9. Find  $RS$ .

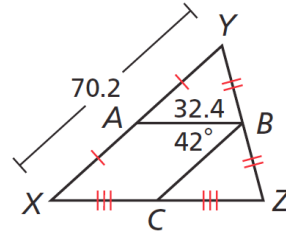




6. In  $\triangle XYZ$ , find each measure

a. BC                      b. XZ

c.  $m\angle YXZ$             d.  $m\angle BCZ$



7. Tell if the measures can be the side lengths of a triangle. If so, classify the triangle as *acute*, *obtuse*, or *right*.

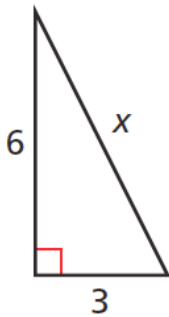
a. 9, 12, 16

b. 1.5, 3.6, 3.9

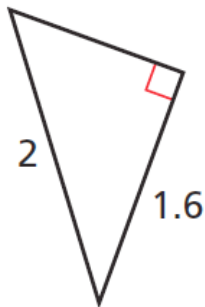
c. 2, 3.7, 4.1

8. Find the value of  $x$ . Give your answer in the simplest radical form.

a.



b.



c.

