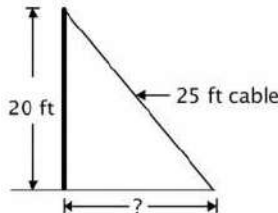**To prepare for the midterm:**
- **Look over past work, including HW, Quizzes, tests, etc…**
- **Do this packet**

Unit 0 Pre Requisite Skills

I Can:

Solve equations including equations with fractions.	
1) $-8n + 4(1 + 5n) = -6n - 14$	2) $\dfrac{1}{3} + 2m = m - \dfrac{3}{2}$
Identify the slope and the y-intercept given a linear equation.	
3) The standard form of a linear equation is:	4) The point-slope form of a linear equation is:
5) Write a linear equation with a slope of 2/3 and a y-intercept of -5.	6) Write a linear equation in point-slope form with a slope of 1/6 and passes through the point (-5, 8).
Get linear equation into "y=" form.	
7) Put this equation in "y=" form: 2-3y=11+x	8) Put this equation in "y=" form: 3/8x+4y=6
Determine whether a set of lines are parallel, perpendicular, or neither given their equations.	
9) Parallel lines have _____ slopes.	10) Perpendicular lines have _____ _____ slopes.
11) Determine if these lines are parallel, perpendicular, or neither: $y = 3x + 2$ $2y = 6x - 6$	12) Determine if these lines are parallel, perpendicular, or neither: $3x - 4y = 19$ $8x + 6y = 12$

Write equations of parallel and perpendicular lines.	
13) Write an equation of a line parallel to $y = 2x - 4$ and passes through point (4, 6)	14) Write an equation of a line perpendicular to $y = 2x - 4$ and passes through point (4, 6)

Write a linear equation given 2 points.
15) What is the equation of the line that passes through the points (-5, 9) and (-4, 7).

Simplify, add, subtract, and multiply radicals	
16) Simplify: $3\sqrt{200} - 4\sqrt{98}$	17) Simplify: $\left(3\sqrt{48}\right)\left(5\sqrt{2}\right)$

Find the 3rd side of a right triangle using the Pythagorean Theorem.	
18) Daniel rides his bicycle 21 km west and then 18 km north. How far is he from his starting point?	19) A telephone pole support cable attaches to the pole 20 feet high. If the cable is 25 feet long, how far from the bottom of the pole does the cable attach to the ground? 20 ft 25 ft cable ?

Unit 1 Basic Constructions

Define bisect, midpoint, median, altitude.	
20) To bisect means to divide a segment into two _____.	21) A midpoint divides a segment into two _____ _____.
22) A median is drawn from a vertex to the _____ of its opposite side.	23) An altitude is drawn from a vertex _____ to its opposite side.

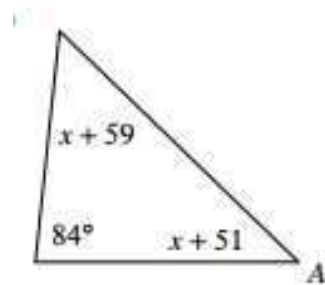| Classify triangles using angles and sides.	
24) A triangle with all equal sides is _____. 25) A triangle with 2 equal sides is _____. 26) A triangle with no equal sides is _____. 27) A right triangle has a _____ angle. 28) An obtuse triangle has one angle that is greater than _____ degrees. 29) An acute angle has all 3 angle less than _____ degrees.	30) Classify the triangle using angles and sides. $x+59$ $84°$ $x+51$ A

Construct equilateral and isosceles triangles.	
31) Construct an equilateral triangle.	32) Construct an isosceles triangle.

Inscribe a square and hexagon in a circle.

33) Inscribe a square in a circle of any size.	34) Inscribe a hexagon in a circle of any size.

Copy a segment.

35) Copy the segment.

Copy and bisect an angle.

36) Copy the angle, and then bisect it.
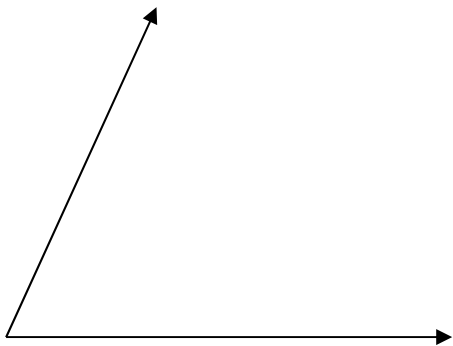
Construct a perpendicular bisector.

37) Construct a perpendicular bisector.

_____

Construct a median on a triangle.

38) Construct the median from vertex A to side BC.

B

A   C
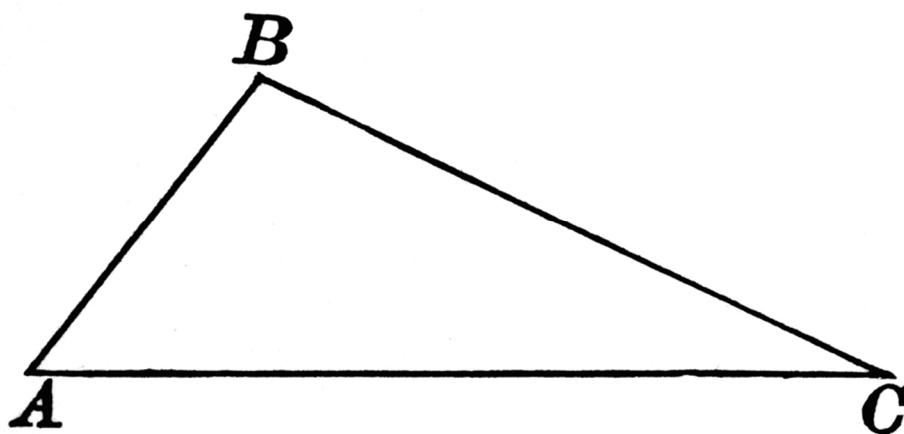
Construct an altitude of a triangle.
39) Construct the altitude from vertex B to side AC.

B

A

C
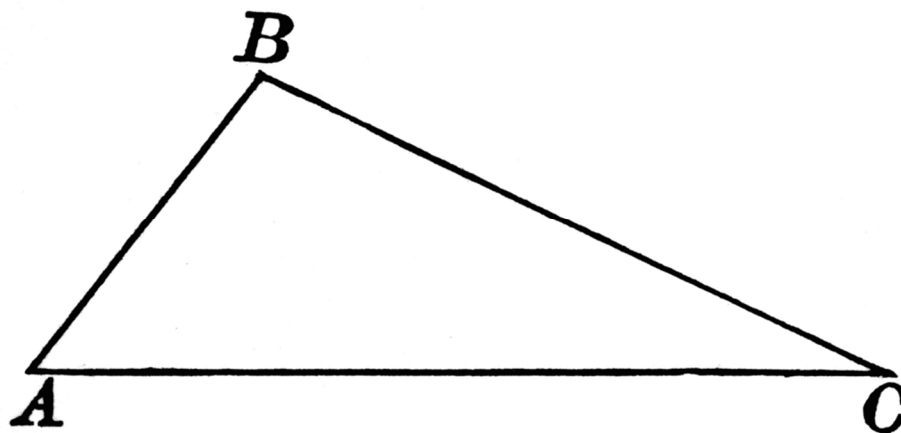
Unit 2 Rigid Motion

Identify reflections, translations, rotations, dilations, lines of symmetry, point symmetry, rotational symmetry, and angles of rotation, degree and order of rotation.		
40) Identify the transformation:	41) Identify the transformation:	42) Identify the transformation:
43) Identify the transformation:	44) Identify the transformation:	45) Identify the transformation:
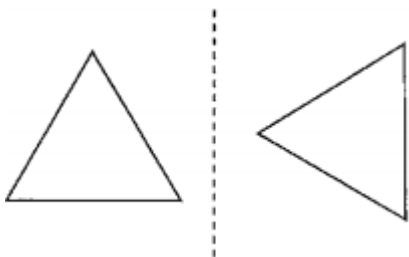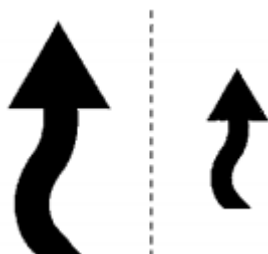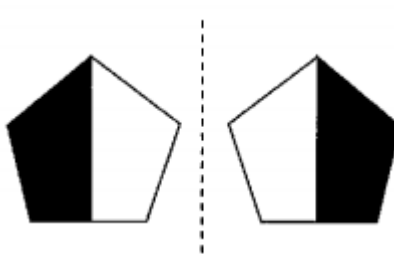
46) A) Draw lines of symmetry.
B) Write the order and degree of rotational symmetry.
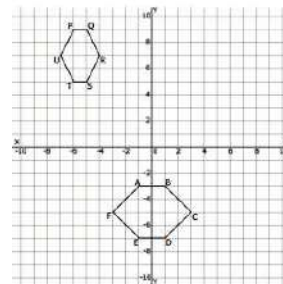C) Does the figure have point symmetry
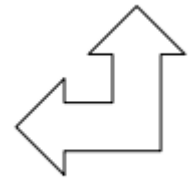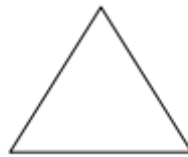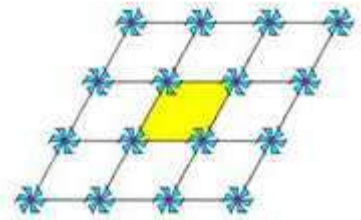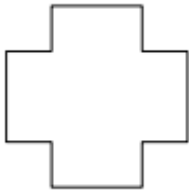
Apply ABCD preservation method for rigid motion

47) Is this rigid motion? Explain why or why not using the properties of rigid motion?
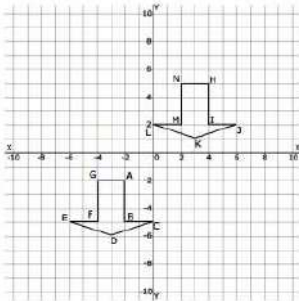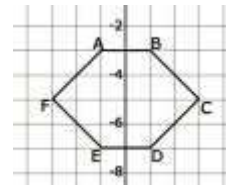

48) Is this rigid motion? Explain why or why not using the properties of rigid motion?

Determine opposite or direct isometries and orientation

49) What is the difference between a direct and opposite isometry?

50) Describe the orientation of this figure.

Apply transformation rules to figures in the coordinate plane.

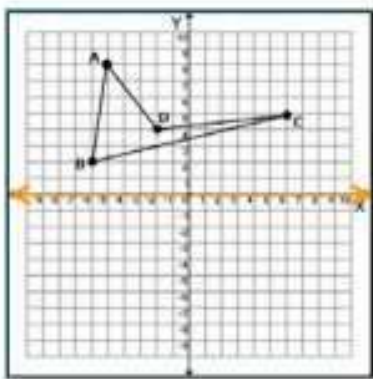**51) Apply the following Rotations and state the new coordinates.**

Rotate 90° counterclockwise.
Point A'   Point B'   Point C'

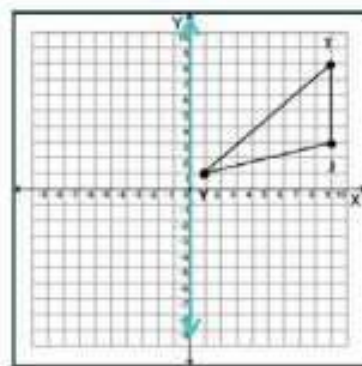Rotate 180° counterclockwise.
Point A''   Point B''   Point C''

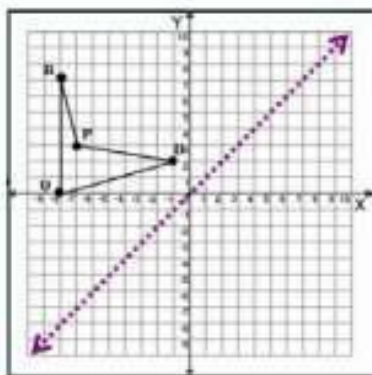Rotate 270° counterclockwise.
Point A'''   Point B'''   Point C'''

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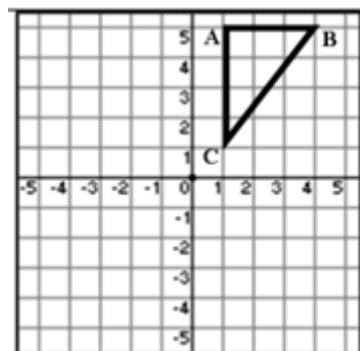
52) Reflect over the x-axis.
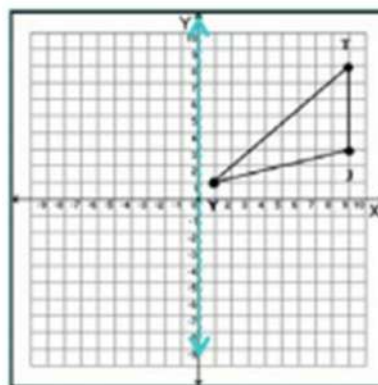

53) Reflect over the y-axis.

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54) Reflect over y=x.

55) $T_{(-4, -2)}$

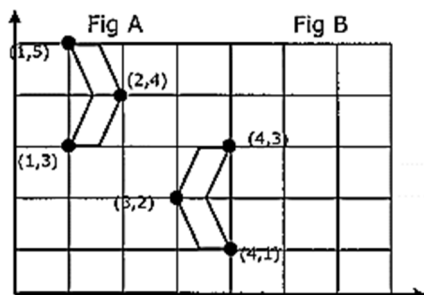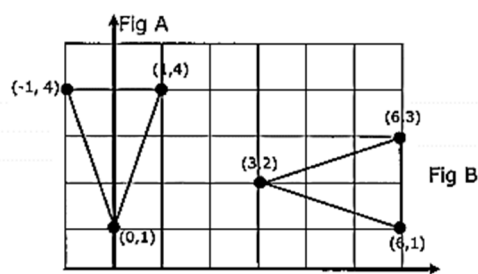
Identify sequences of rigid motion given the pre-image and image of a figure.

56) Describe the sequence of rigid motion that maps Figure A onto Figure B.

57) Describe the sequence of rigid motion that maps Figure A onto Figure B.

58)

    What is the image of point (1,1) under $r_{x\text{-}axis} \circ R_{90°}$?
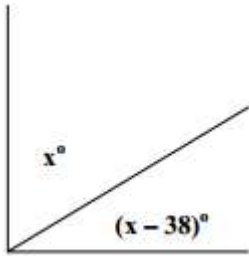
59)

    Find the coordinates of the image of (2,4) under the transformation $r_{y\text{-}axis} \circ T_{3,-5}$.
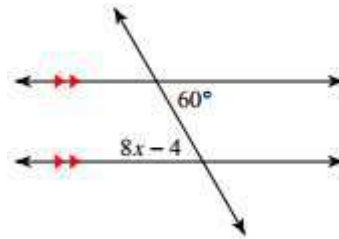
Unit 3 Unknown Angles

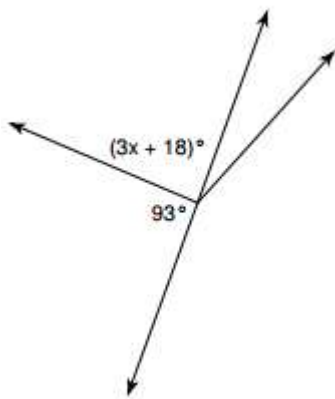| Write good definitions and identify complementary, supplementary, vertical, adjacent, alternate interior, alternate exterior, corresponding, interior on the same side angles.	
60) Solve for x and justify your reasoning. $x°$ $(x-38)°$	61) Solve for x and justify your reasoning. $60°$ $8x-4$
62) Solve for x and justify your reasoning. $(3x+18)°$ $93°$	63) Solve for x and justify your reasoning. $(2+3x)°$ $62°$
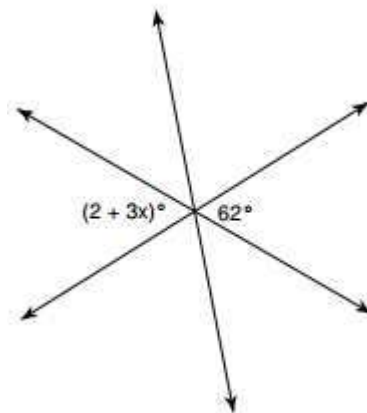
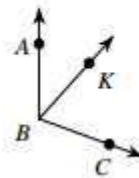| 64) Solve for x and justify your reasoning.	65) Solve for x and justify your reasoning.
$23x - 5$ $21x + 5$	$100°$?
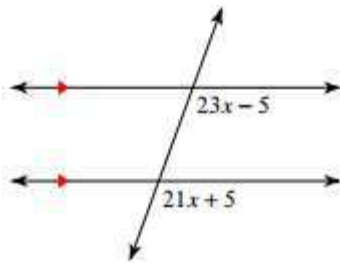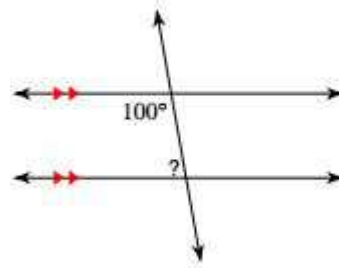
Apply segment and angle addition.
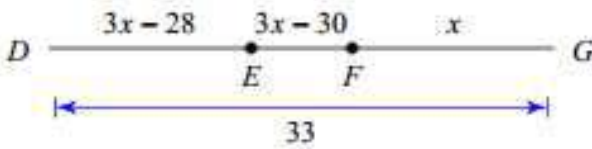
66) Find DE.	67)
$3x - 28$ $3x - 30$ x D — E — F — G 33	$m\angle ABC = 17x + 8,\ m\angle ABK = 42°,$ and $m\angle KBC = 12x - 4.$ Find $m\angle ABC.$ A K B C

Identify geometry's undefined terms.

68) The three undefined terms in geometry are _____, _____, and

_____

Apply the reflexive, symmetric, and transitive postulates.

69) Match the properties:

If $a = b$ and $b = c$, then $a = c$ _____

Addition Property of Equality

If $a = b$, then $b = a$ _____

Reflexive Property of Equality
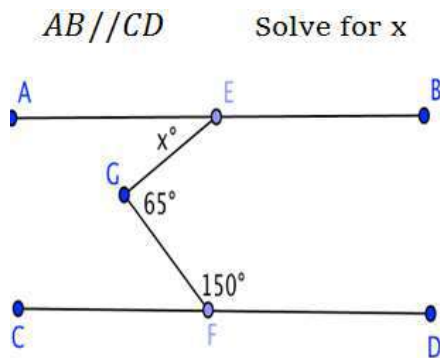
$\overline{AB} = \overline{AB}$ _____

Symmetric Property of Equality

If $a = b$, then $a + c = b + c$

Transitive Property of Equality

Draw auxiliary lines and use them to finding angles.

Calculate angles using parallel lines theorems and auxiliary lines.
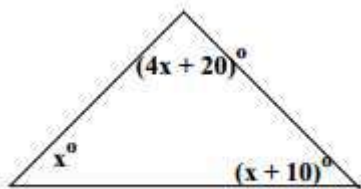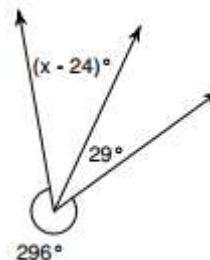
70)

$AB // CD$ Solve for x

Write algebraic proofs using the following theorems:

- o The sum of angles on a straight line is 180.
- o The sum of adjacent angles around a point is 360.
- o Vertical angles are congruent

71) Write an algebraic proof to solve for x.	72) Write an algebraic proof to solve for x.

Find the slope and midpoint given two points.

Determine the slopes of parallel lines and perpendicular lines.

73) The slope formula is:	74) The midpoint formula is:
The endpoints of $\overline{CD}$ are $C(-2, -4)$ and $D(6, 2)$. What is the slope of $\overline{CD}$?	The endpoints of $\overline{CD}$ are $C(-2, -4)$ and $D(6, 2)$. What are the coordinates of the midpoint of $\overline{CD}$?

|	
75) *M* is the midpoint of $\overline{AB}$. If the coordinates of *A* are $(-1, 5)$ and the coordinates of *M* are $(3, 3)$, what are the coordinates of *B*?	76) What is the slope of a line perpendicular to the line whose equation is $y = 3x + 4$?
77) Two lines are represented by the equations $-\frac{1}{2}y = 6x + 10$ and $y = mx$. For which value of *m* will the lines be parallel?	78) What is an equation of the line that passes through the point $(-2, 5)$ and is perpendicular to the line whose equation is $y = \frac{1}{2}x + 5$?

79) Write the equation of the ***perpendicular*** bisector that goes through the line segment with the endpoints of A(1,2) and B(-2, 8).

Hint: Find the midpoint of segment AB and its slope first. Next, write the equation with a negative reciprocal slope and passing through that midpoint.
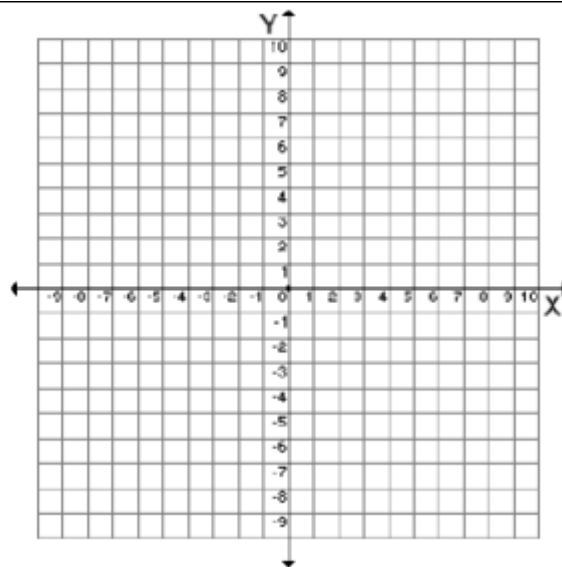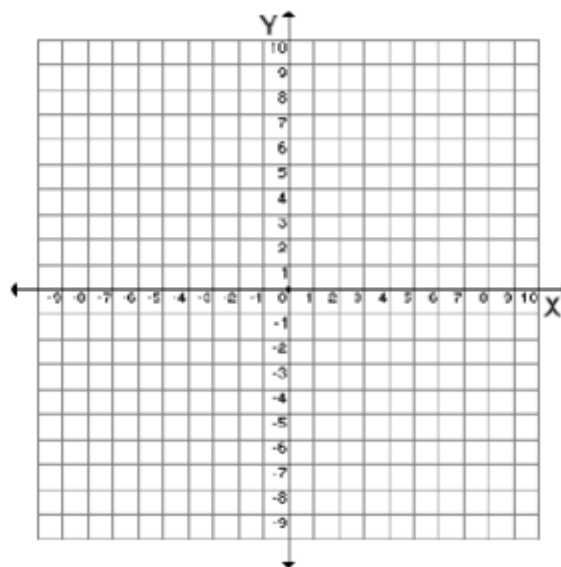

Write **coordinate geometry proofs** using distance, midpoint and slope formulas.

80) Given: Triangle ABC with A(3, 7), B(1, 3), and C(5, 1)
    Prove Triangle ABC is a right triangle.
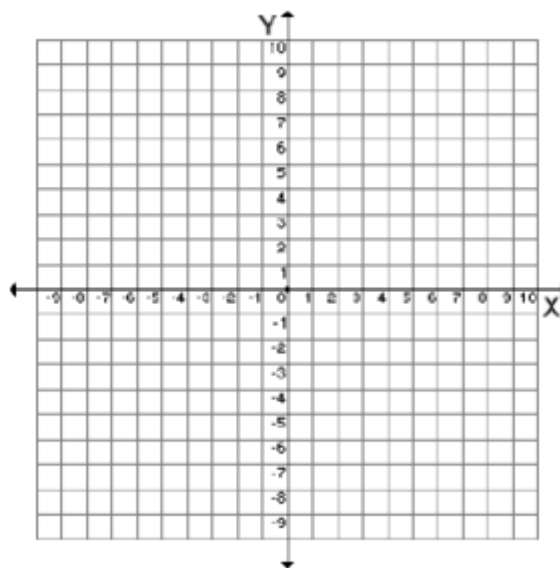
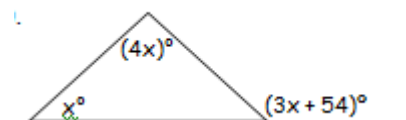81) Given: Quadrilateral LMNO with the coordinates L(-2,3), M(4,3), N(2,-2) and O(-4,-2)
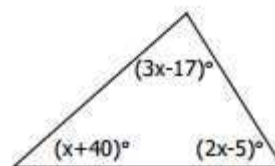
Prove: LM || NO and MN || OL

Unit 5 Triangles

Find the measures of angles using the sum of interior angles of a triangle theorem, and exterior angle of a triangle theorem.

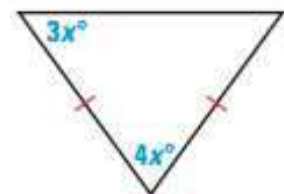| 82) Solve for x.	83) Solve for x.

Draw and label the parts of an isosceles triangle.
Apply the Isosceles Triangle Theorems.

84) In an isosceles triangle the altitude drawn to the base is also the _____ and the

_____ _____.

85) Solve for x and justify your reasoning.

Determine the sides of a triangle using the triangle inequality theorem.
86) Which set of numbers may represent the lengths of the sides of a triangle?

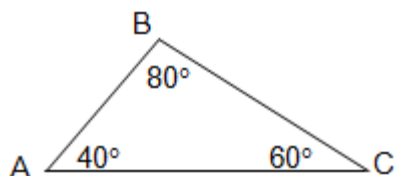(a) {2,5,9}   (b) {6,6,7}   (c) {6,4,2}   (d) {7,8,1}

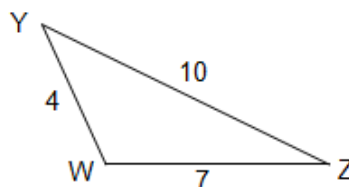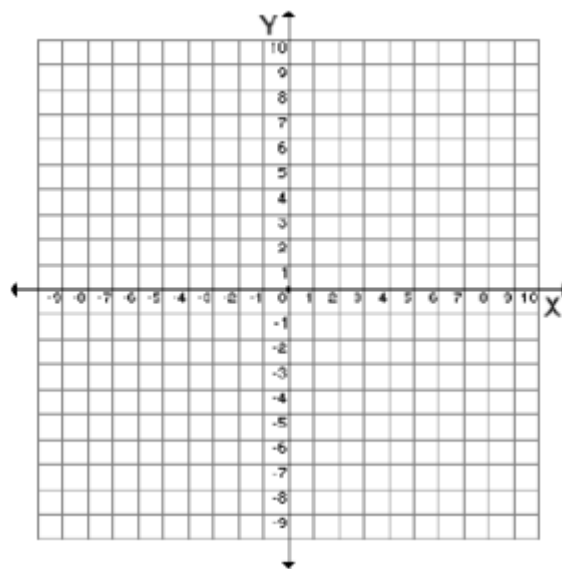| Apply the largest angle across from the longest side theorem, and the exterior angle inequality theorem. |
|---|

87)

Identify the largest side.

B

80°

A 40°   60° C

88)

Identify the smallest angle.

Y

10

4

W   7   Z

Determine the equation of a perpendicular bisector.

89) Find the equation of the perpendicular bisector of
the segment with endpoints A(1, 3), B(5, 5).

Unit 6 Triangle Congruence

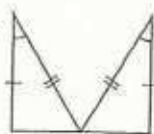| Identify corresponding parts of congruent triangle. |
|---|
| Identify and Apply the Triangle Congruence Theorems – AAS, ASA, SSS, SAS, HL (not AAA, ASS). |
| 90. |

State the postulate or theorem that proves that the triangles are congruent. If the triangles cannot be
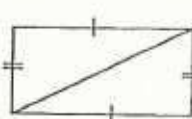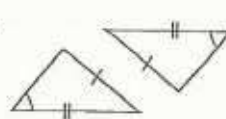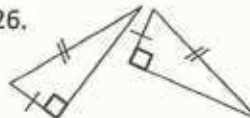proven congruent, write *not possible*.

20.

21.

22.

23.

_____

_____
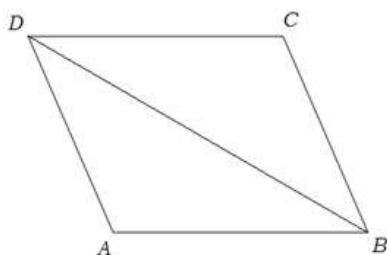
_____

_____

24.

25.

26.

27.

_____

_____

_____

_____

Prove triangles are congruent.
Write 2 column proofs!

90)

Given: $\overline{AD} \parallel \overline{CB}$

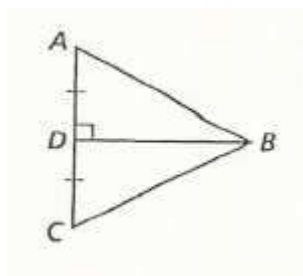$\angle A \cong \angle C$

Prove: $\triangle DAB \cong \triangle BCD$

Statements	Reasons

Prove parts of triangles are congruent using CPCFC or CPCTC.

91)

Given: $\overline{BD} \perp \overline{AC}$,

D is the midpoint of $\overline{AC}$

Prove: $\overline{BC} \cong \overline{BA}$

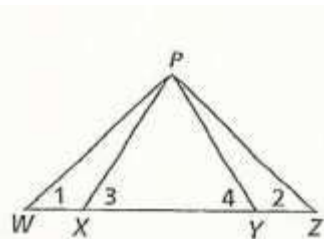| Statements	Reasons

92)

Given: $\angle 1 \cong \angle 2$,
$\overline{WX} \cong \overline{ZY}$

Prove: $\angle 3 \cong \angle 4$

Statements	Reasons

Now, check your answers with the key on the website!! If you get any incorrect, go back and redo them until you have mastered that concept!

There are no secrets to success. It is the result of preparation, hard work, and learning from failure.
Colin Powell