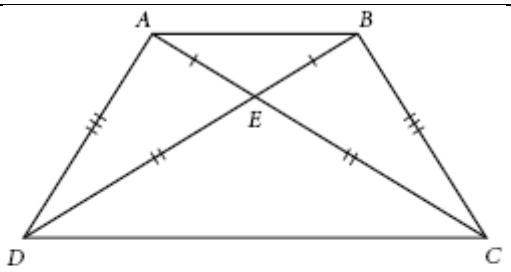
Integrated Math 1
Unit 5 Test
Congruence and Similarity

Score: ___ / 40

Name _____
Block ___ Date _____

Section A: (1 mark each – Total of 11 marks)

Use trapezoid ABCE for Exercises 1 & 2.



1. Which congruence statement is correct?

   a. $\triangle AEB \cong \triangle DEC$ b. $\triangle AED \cong \triangle CEB$

   c. $\triangle AED \cong \triangle BEC$ d. $\triangle ABC \cong \triangle BCD$

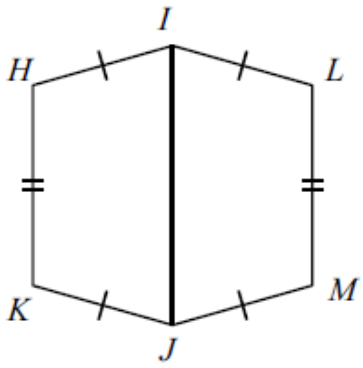
   Answer: _____

2. $\overline{AB} \cong \overline{AB}$ by

   a. Overlapping Segments Postulate
   b. Reflexive Property
   c. CPCTC
   d. Isosceles Triangle Theorem

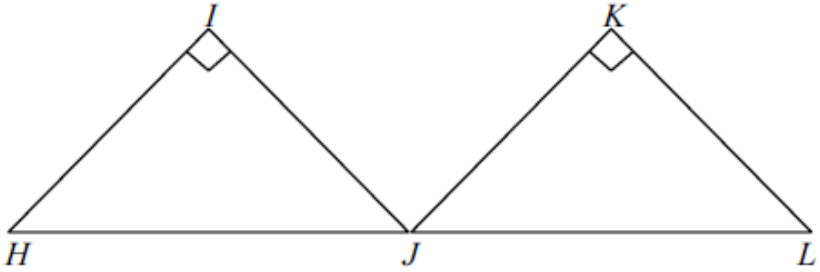
   Answer: _____

3. In the two quadrilaterals below, $\angle H \cong \angle L$, $\angle K \cong \angle M$, $\angle KJI \cong \angle MJI$, and $\angle JIH \cong \angle JIL$. Complete the congruence statement: Quadrilateral $JIHK \cong$ ___?___



   Answer: _____

4. Refer to the figure shown. Given the information below, which of the following statements is true?



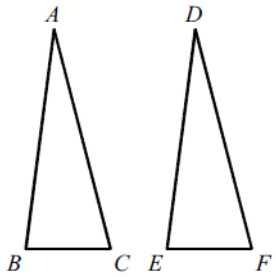
$HI = JK \quad \overline{IJ} \cong \overline{LK}$

   Answer: _____

   [A] $\Delta HIJ \cong \Delta KLJ$ by the SAS rule [B] $\Delta HIJ \cong \Delta LKJ$ by the ASA rule

   [C] $\Delta HIJ \cong \Delta KLJ$ by the ASA rule [D] $\Delta HIJ \cong \Delta JKL$ by the SAS rule

5. If $\overline{AB} \cong \overline{DE}$ and $\overline{BC} \cong \overline{EF}$, which must must be true to assure that the triangles are congruent?

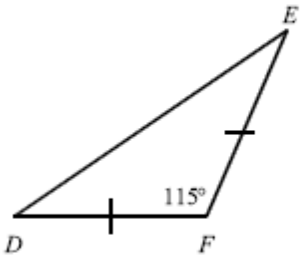


Answer: _____

[A] $\angle B \cong \angle E$ [B] $\angle A \cong \angle D$

[C] $\angle C \cong \angle F$ [D] The information given is enough to assure congruence.

6. Use information in the figure below to find $m\angle D$.

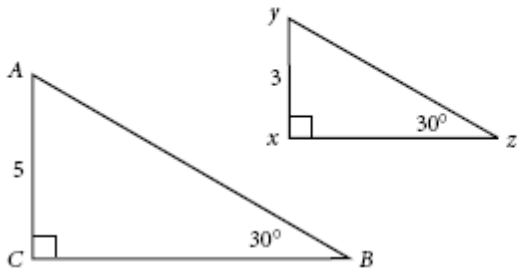


Answer: _____

[A] 65° [B] 147.5° [C] 57.5° [D] 32.5°

7. The two triangles below are similar. If $YZ = 6$, then $AB =$ _____.

a. 2.5 b. 6 c. 10 d. 18

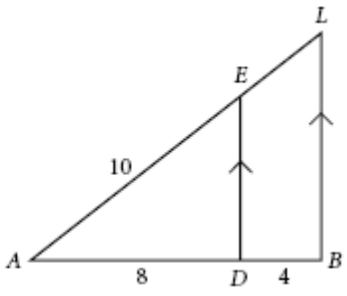


Answer: _____

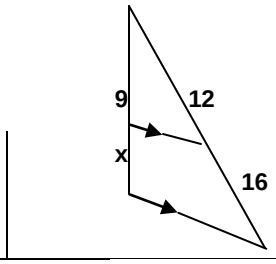
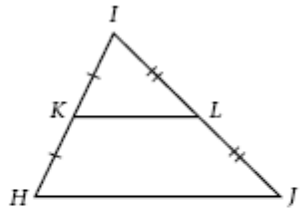
8. In $\triangle ADE$, if ED = 6, what is BL?

a. 3 b. 5

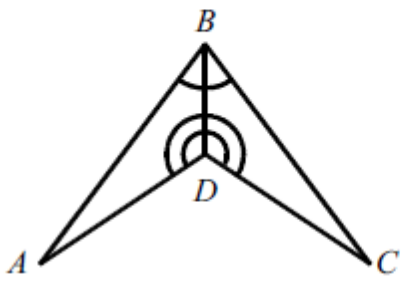
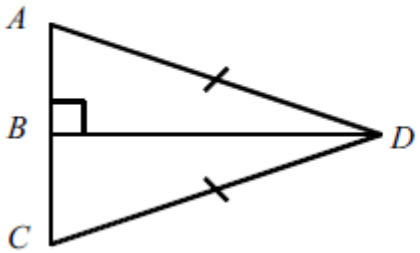
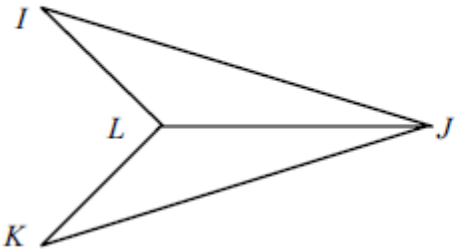
c. 9 d. 12



Answer: _____

9.	What is the value of x in the figure at the right? a. 8 b. 12 c. 14 d. 16 	Answer: _____
10.	If $KL = 15$, then $HJ =$ _____. a. 7.5 b. 15 c. 30 d. 45 	Answer: _____
11.	Use the diagram from the previous question. If $HJ = 3x - 1$ and $KL = x + 1$, then $HJ =$ _____. a. 3 b. 4 c. 8 d. 10	Answer: _____

Questions 12-14. For each pair of triangles given below, (a) name the triangles that are congruent, and (b) state the congruence theorem or postulate that makes them congruent

12.	13.	14. $\overline{LJ}$ bisects $\angle IJK$ and $\angle ILJ \cong \angle KLJ$.
		
(a) _____ (b) _____ *(2 marks)*	(a) _____ (b) _____ *(2 marks)*	(a) _____ (b) _____ *(2 marks)*

15. In ΔABC and ΔDEF, $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$. Can ΔABC and ΔDEF be proven congruent?

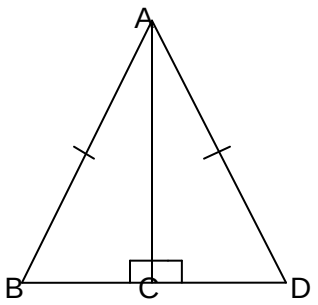
Explain your answer with the aid of a sketch if required.

(2 marks)

16. Can it be concluded that $\Delta ABC \cong \Delta DEF$, given $\overline{BC} \cong \overline{EF}$, $\overline{AC} \cong \overline{DF}$, and $\angle A \cong \angle D$? Explain.

(2 marks)

17.



In the figure above $\overline{AB} \cong \overline{AD}$ and $\overline{AC} \perp \overline{BD}$.

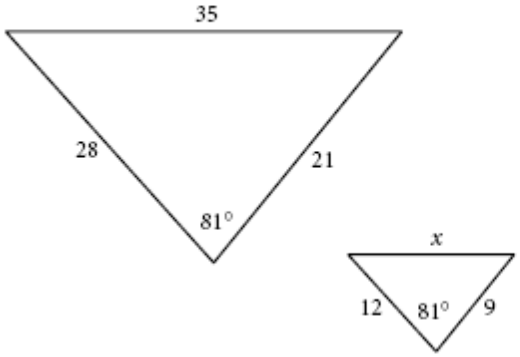
Tony is trying to convince Sue that $\overline{BC} \cong \overline{CD}$.

Help Tony justify this by writing a **detailed** paragraph to explain the reasoning.

(3 marks)

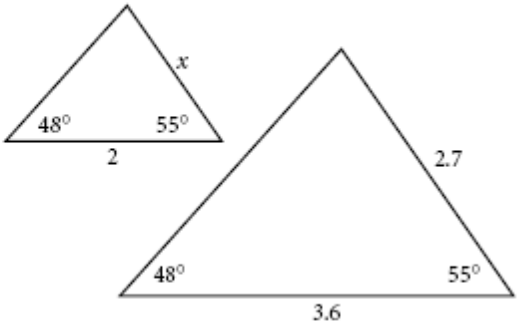
Write and solve an equation to find *x* in each pair of figures.

18.



Equation: _____, x = _____
(2 marks)

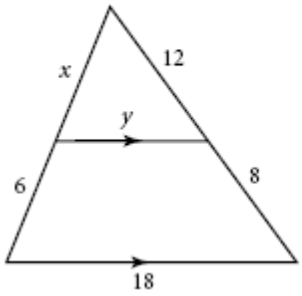
19.



Equation: _____, x = _____
(2 marks)

Write and solve equations to find *x* and *y* in each figure below.

20.



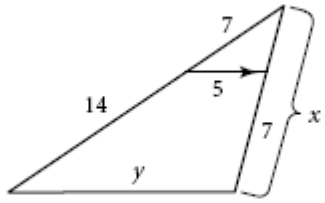
Equation for *x*: _____

Equation for *y*: _____

x = _____ *(2 marks)*

y = _____ *(2 marks)*

21.



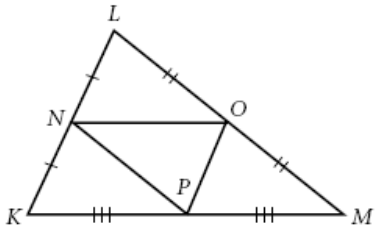
Equation for *x*: _____

Equation for *y*: _____

x = _____ *y* = _____
(2 marks) *(2 marks)*

***N, O,* and *P* are the midpoints of the sides of $\triangle KLM$.**

22. If NO = 2x and KM = x + 15, find NO.



NO = _____
(2 marks)

23. A tree with a height of 4m casts a shadow 15 m long on the ground. How high is another tree that casts a shadow which is 20 m long?

(2 marks)