

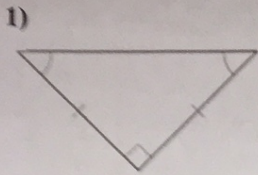
Name KEY

Date \_\_\_\_\_

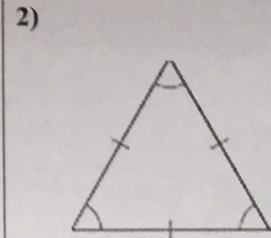
Period \_\_\_\_\_

Geometry 4.1, 4.2, 4.6 Review

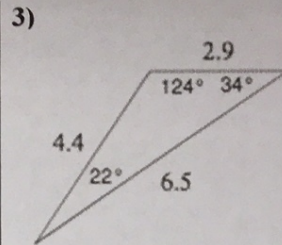
Classify each triangle by its angles and sides. Use the most specific terms possible.



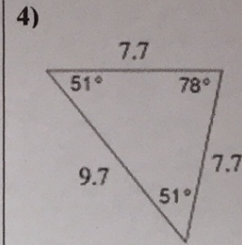
right isosceles



equiangular  
equilateral



obtuse scalene



acute isosceles

5) In the figure,  $\overline{PQ} \cong \overline{PS}$  and  $\overline{PR} \perp \overline{QS}$ . Mark the diagrams and then complete the sentence.

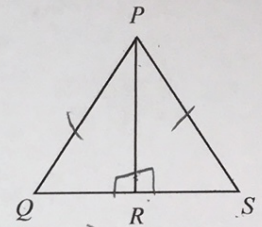
a.  $\overline{PQ}$  is the hypotenuse of the right triangle  $\triangle PQR$ .

b. In  $\triangle PQR$ ,  $\overline{PQ}$  is the side opposite angle  $\angle PRQ$ .

c.  $\overline{QS}$  is the base of the isosceles triangle  $\triangle PQS$ .

d. The legs of  $\triangle PRS$  are  $\overline{PR}$  and  $\overline{RS}$ .

e.  $\angle S$  and  $\angle RPS$  are complementary angles.



6) The variable expressions represent the angle measures of a triangle. Find the measure of each angle. Then classify the triangle by its angles and sides.

a.  $m\angle A = x^\circ = 33^\circ$   
 $m\angle B = (2x)^\circ = 66^\circ$   
 $m\angle C = (2x + 15)^\circ = 81^\circ$

$$x + 2x + 2x + 15 = 180$$

$$5x + 15 = 180$$

$$5x = 165$$

$$x = 33$$

$\triangle ABC$  is acute scalene

b.  $m\angle R = x^\circ = 20^\circ$   
 $m\angle S = (7x)^\circ = 140^\circ$   
 $m\angle T = x^\circ = 20^\circ$

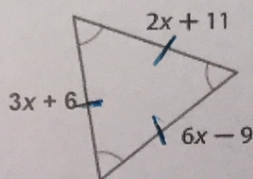
$$x + x + 7x = 180$$

$$9x = 180$$

$$x = 20$$

$\triangle RST$  is obtuse isosceles

7) Find the perimeter of the triangle below (in meters).



equiangular  $\rightarrow$  equilateral (all sides are  $\cong$ )

$$2x + 11 = 6x - 9$$

$$20 = 4x$$

$$x = 5$$

$$2(5) + 11 = 21$$

each side is 21 units

$$\text{Perimeter} = 21 + 21 + 21$$

$$= 63 \text{ units}$$



8) Using the Exterior Angle Theorem, find  $x$ . Then, find the measure of the exterior angle.

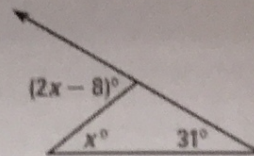
$$x + 31 = 2x - 8$$

$$39 = x$$

$$2(39) - 8 = 70$$

$$x = \underline{39}$$

$$\text{measure of exterior angle} = \underline{70^\circ}$$



9) Use the diagram on the right to find the following angle measures.

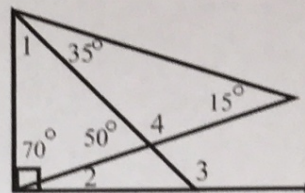
$$m\angle 1 = \underline{60^\circ}$$

$$m\angle 2 = \underline{20^\circ}$$

$$m\angle 3 = \underline{150^\circ}$$

$$m\angle 4 = \underline{130^\circ}$$

$$\leftarrow \text{exterior angle: } 60 + 90 = 150$$



10) Find the side lengths of  $\triangle ABC$  with vertices  $A(3, 5)$ ,  $B(3, 1)$ , and  $C(7, 1)$ . Then classify the triangle by its angles and its sides. (Leave lengths in simplified radical form when necessary)

$$a^2 + b^2 = c^2$$

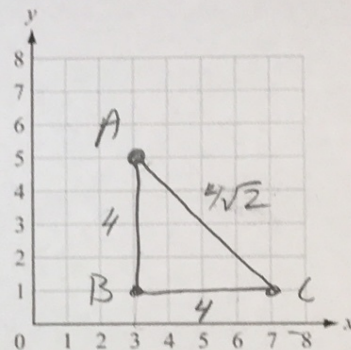
$$4^2 + 4^2 = c^2$$

$$16 + 16 = c^2$$

$$32 = c^2$$

$$c = \sqrt{32}$$

$$c = 4\sqrt{2}$$



$$AB = \underline{4}$$

$$BC = \underline{4}$$

$$AC = \underline{4\sqrt{2}}$$

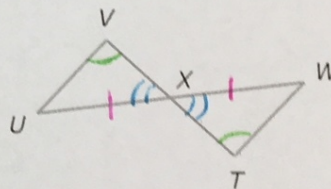
Classify  $\triangle ABC$ : Right Isosceles

11) Complete the proof below.

Given:  $\angle V \cong \angle T$

$X$  is the midpoint of  $\overline{WU}$

AAS



Prove:  $\overline{VU} \cong \overline{TW}$

Statements	Reasons
1. $\angle V \cong \angle T$	1. Given
2. $X$ is midpoint of $\overline{WU}$	2. Given
3. $\overline{UX} \cong \overline{WX}$	3. midpoint of segment $\rightarrow$ 2 $\cong$ segments
4. $\angle VXU$ & $\angle TXW$ are vertical $\angle$ s	4. Given by diagram
5. $\angle VXU \cong \angle TXW$	5. 2 vertical $\angle$ s $\rightarrow$ 2 $\cong$ $\angle$ s
6. $\triangle UVX \cong \triangle TWX$	6. Corr AAS of 2 $\Delta$ s $\cong$ $\rightarrow$ $\Delta$ s are $\cong$
7. $\overline{VU} \cong \overline{TW}$	7. CPCTC