December 03, 2015

Geometry

Notes Section 4.8

Use Isosceles and Equilateral Triangles

VOCABULARY

Legs of an Isosceles Triangle_____

Vertex Angle: _____

Base: _____

Base Angles: _____

THEOREM 4.7 Base Angles Theorem

If two sides of a triangle are congruent, then the angles opposite them are congruent.

If $\overline{AB} \cong \overline{AC}$, then $\angle B \cong \angle C$.

THEOREM 4.8 Converse of Base Angles Theorem

If two angles of a triangle are congruent, then the sides opposite them are congruent.

If $\angle B \cong \angle C$, then $\overline{AB} \cong \overline{AC}$.

Corollary to the Base Angles Theorem

If a triangle is equilateral, then it is equiangular.

Corollary to the Converse of Base Angles Theorem

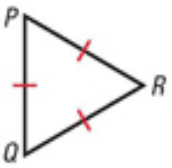
If a triangle is equiangular, then it is equilateral.

EXAMPLE 1

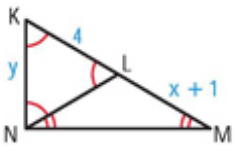
a) Name 2 congruent angles

b) Name 2 congruent sides

EXAMPLE 2 Find the measures of ∠P, ∠Q and ∠R.



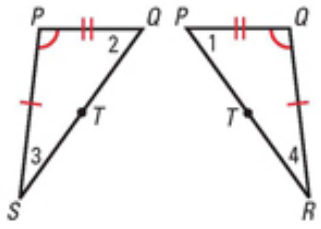
EXAMPLE 3 Find the values of x and y.



EXAMPLE 4 In the lifeguard tower, PS ≅ QR and ∠QPS ≅ ∠PQR.

a) What theorem/postulate proves ΔQPS ≅ ΔPQR?

b) Why is ΔPQT isosceles?



c) Show that ΔPTS ≅ ΔQTR