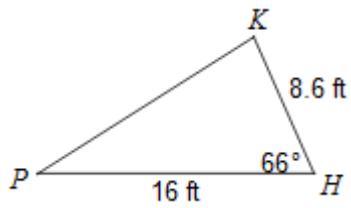


## SM3 11.2: Area of a Triangle Using Trig

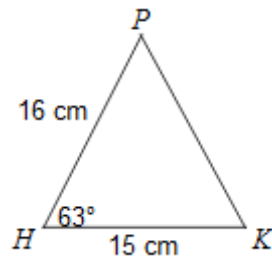
Find the area of each triangle to the nearest tenth.

1)



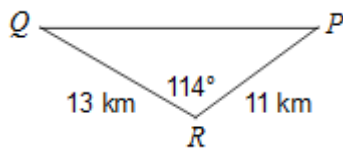
$$A = 62.9 \text{ ft}^2$$

2)



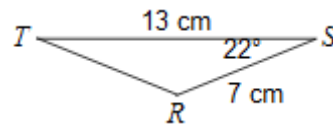
$$A = 106.9 \text{ cm}^2$$

3)



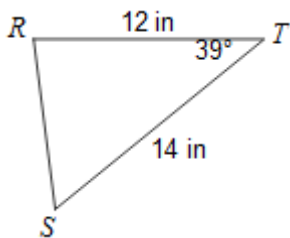
$$A = 65.3 \text{ km}^2$$

4)



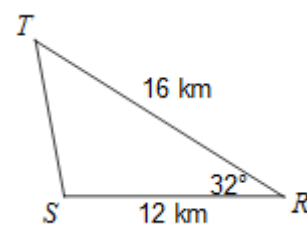
$$A = 17.0 \text{ cm}^2$$

5)



$$A = 52.9 \text{ in}^2$$

6)



$$A = 50.9 \text{ km}^2$$

7) In  $\triangle ABC$ ,  $AB = 10$ ,  $AC = 8$ , and  $m\angle A = 45^\circ$ 

$$A = 28.3 \text{ units}^2$$

8) In an isosceles triangle, the two equal sides each measure 24 meters, and they include an angle of  $30^\circ$ .

$$A = 144.0 \text{ m}^2$$

Solve each problem.

- 9) In  $\triangle ABC$ ,  $AB = 12$  meters and  $AC = 20$  meters. If the area of the triangles is  $77 \text{ m}^2$  find the measure of  $\angle A$  to the nearest degree.

$$m\angle A = 40^\circ$$

- 10) In a rhombus (each side is the same length, but the angles are not all  $90^\circ$ ), each side is 15 and one angles is  $130^\circ$ . Find the area of the rhombus to the nearest square unit.

$$A = 172 \text{ units}^2$$

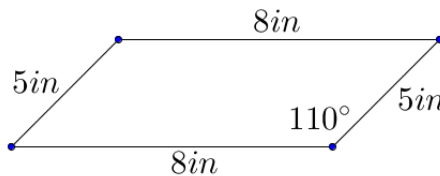
- 11) A farmer has a triangular field where two sides measure 450 yards and 320 yards. The angle between the two sides is  $80^\circ$ . The farmer wishes to use an insecticide that costs \$4.50 per bottle and each bottle covers 100 sq. yards. What will it cost to use this insecticide on this field?

$$\text{\$3195}$$

- 12) A triangle has two sides of 30 meters and 26 meters, and the angles between them is an obtuse angle. If the area of the triangle is 300 sq. meters, find the measure of the obtuse angle to the nearest degree.

$$m\angle A = 130^\circ$$

- 13) Samuel has decided to use stamped concrete for his packyard patio. He has chosen to make his design out of parallelograms and has designed the parallelogram pattern shown to the right. Find the area of Samuel's design to the nearest tenth of a sq. inch.



$$A = 37.6 \text{ in}^2$$

- 14) The Art Guild is painting a mural in the shape of an isosceles triangle on their building at the State Fair. The equal sides of the triangle will each be 12 yds in length, and the area of the triangular mural will be 55 sq. yards. Find the measures of the three angles of the triangle to the nearest hundredth degree.

$$49.81^\circ, 65.1^\circ, 65.1^\circ$$