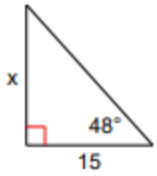
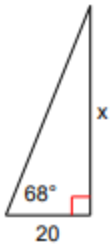
9.4 Name_____

Find the value of the missing side. Round all answers to the nearest tenth. SHOW ALL WORK!!!!!!!!!!!!!!!!!

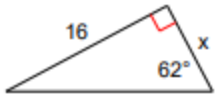
1.



2.



3.



4. Mary is 5 feet 6 inches tall. Her shadow is 70 inches. She is standing beside a tree that has a shadow of 180 inches. How tall is the tree in inches? In feet? DRAW AND LABEL A PICTURE!!!!!

5. Complete the square.

$X^2 - 12x - 5 = 0$ **$x^2 + 6x - 16 = 0$**

6. If a triangle has coordinates of A(-4,8), B(1,9) and C(11,-2), find the new coordinates after: NOTE: this isn't a composition. Each problem is separate.

a. a reflection over the line y=x

b. a rotation of 90 degrees

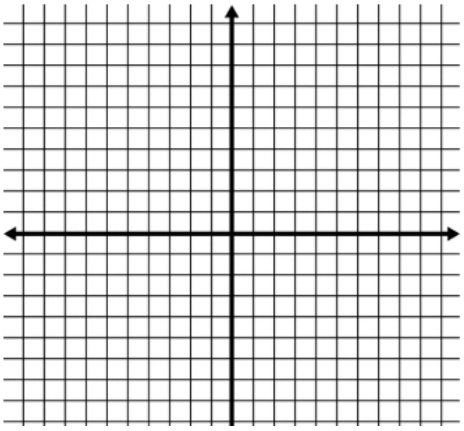
c. a translation (x-2, y+4)

7. Two polygons are similar. The perimeter/area of one polygon and the ratio of the side lengths are given. Find the perimeter/area of the other polygon.

a. Perimeter of the larger polygon is 80 feet and the ratio of the sides is $\frac{3}{4}$. Find the perimeter of the smaller polygon.

b. The area of the smaller polygon is 62 square feet and the ratio of the sides is $\frac{1}{2}$. Find the area of the larger polygon.

8. The coordinates of a triangle are F(2,3), G(-2,1), and H(5,1). Graph the points
a. Find the coordinates of N, the midpoint of FH and P, the midpoint of GH .



b. Show that NP is parallel to FG.

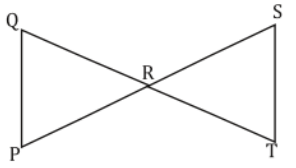
c. Show that NP = $\frac{1}{2}$ of FG.

9.For a regular 24 sided polygon, find the following. <u>SHOW ALL WORK!</u>

Total interior degrees **Each interior angle** **Total exterior degrees** **Each exterior angle**

10. Complete the proof. LABEL THE PICTURES AS YOU COMPLETE THE PROOFS.

Given: $\overline{QT}$ bisects $\overline{SP}$, $\overline{SP}$ bisects $\overline{QT}$



Prove: $\triangle QRP \cong \triangle SRT$