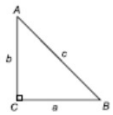
Applying Trigonometric Functions

Solve each problem. Round to the nearest tenth.

1. If $A = 55° 55'$ and $c = 16$, find a.

2. If $a = 9$ and $B = 49°$, find b.

3. If $B = 56° 48'$ and $c = 63.1$, find b.

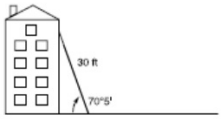


4. If $B = 64°$ and $b = 19.2$, find a.

5. If $b = 14$ and $A = 16°$, find c.

6. ***Construction*** A 30-foot ladder leaning against the side of a house makes a 70° 5′ angle with the ground.

a. How far up the side of the house does the ladder reach?



b. What is the horizontal distance between the bottom of the ladder and the house?

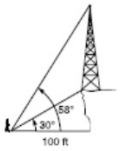
7. ***Geometry*** A circle is circumscribed about a regular hexagon with an apothem of 4.8 centimeters.

a. Find the radius of the circumscribed circle.

b. What is the length of a side of the hexagon?

c. What is the perimeter of the hexagon?

8. ***Observation*** A person standing 100 feet from the bottom of a cliff notices a tower on top of the cliff. The angle of elevation to the top of the cliff is 30°. The angle of elevation to the top of the tower is 58°. How tall is the tower?



Solving Right Triangles

Solve each equation if $0° \le x \le 360°$.

1. $\cos x = \frac{\sqrt{2}}{2}$ **2.** $\tan x = 1$ **3.** $\sin x = \frac{1}{2}$

Evaluate each expression. Assume that all angles are in Quadrant I.

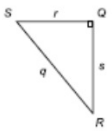
4. $\tan\left(\tan^{-1}\frac{\sqrt{3}}{3}\right)$ **5.** $\tan\left(\cos^{-1}\frac{2}{3}\right)$ **6.** $\cos\left(\arcsin\frac{5}{13}\right)$

Solve each problem. Round to the nearest tenth.

7. If $q = 10$ and $s = 3$, find S.

8. If $r = 12$ and $s = 4$, find R.

9. If $q = 20$ and $r = 15$, find S.

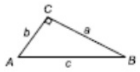


Solve each triangle described, given the triangle at the right. Round to the nearest tenth, if necessary.

10. $a = 9$, $B = 49°$

11. $A = 16°$, $c = 14$

12. $a = 2$, $b = 7$



13. ***Recreation*** The swimming pool at Perris Hill Plunge is 50 feet long and 25 feet wide. The bottom of the pool is slanted so that the water depth is 3 feet at the shallow end and 15 feet at the deep end. What is the angle of elevation at the bottom of the pool?