**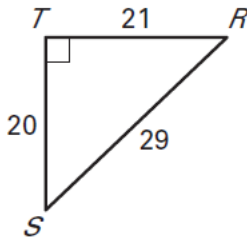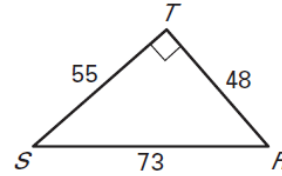Find sin R and sin S. Write each answer as a simplified fraction and as a decimal. Round to four decimal places if necessary.**

1.

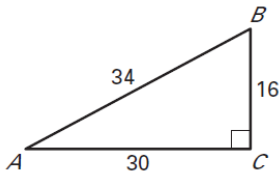T   21   R

20

29
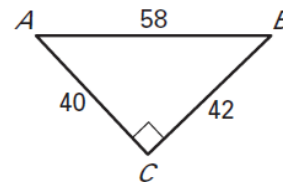
S

2.

55

T

48

S   73   R

**Find cos A and cos B. Write each answer as a simplified fraction and as a decimal. Round to four decimal places if necessary.**
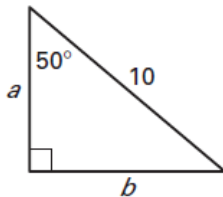
3.

B

34

16

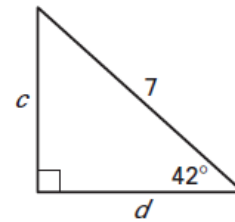A   30   C

4.

A   58   B

40

42

C

**Use a sine or cosine ratio to find the value of each variable. Round decimals to the nearest tenth.**

5.

$50°$

10

$a$

$b$

6.

$c$
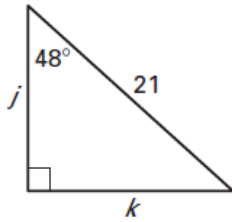
7

$42°$

$d$

7.

$f$
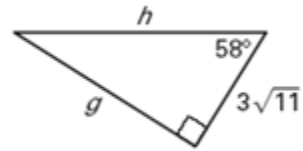
$36°$

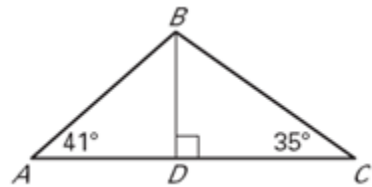$2\sqrt{7}$

$e$

8.

15

$55°$

$g$

$h$
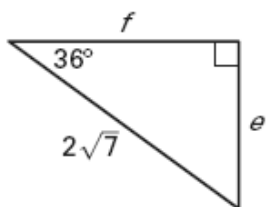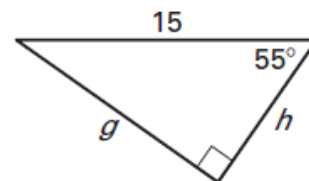
9.



10.



11. **Perimeter**   In the diagram below, $BC$ = 110 inches. What is the perimeter of the triangle? Round your answer to the nearest tenth.



12. You lean a 16 foot ladder against the wall. If the ladder makes an angle of 70° with the ground, how far away from the wall is the base of the ladder? How far up the house does the ladder reach? Round your answers to the nearest tenth of a foot.



13. You are traveling along a stretch of highway that has a slight grade with an angle of inclination of 5°. After traveling for 4 miles, what is the vertical $v$ and horizontal $h$ change in feet? (1 mile = 5,280 feet) Round your answer to the nearest foot.
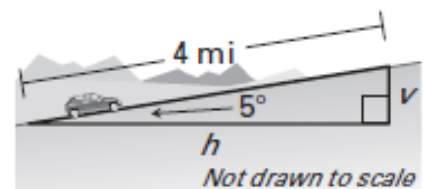
**Answer Key:**

1.  $\sin R = \dfrac{20}{29}$, 0.6897, $\sin S = \dfrac{21}{29}$, 0.7241

2.  $\sin R = \dfrac{55}{73}$, 0.7534, $\sin S = \dfrac{48}{73}$, 0.6575

3.  $\cos A = \dfrac{15}{17}$, 0.8824, $\cos B = \dfrac{8}{17}$, 0.4706

4.  $\cos A = \dfrac{20}{29}$, 0.6897, $\cos B = \dfrac{21}{29}$, 0.7241

5.  a =6.4, b =7.7

6.  c =4.7, d =5.2

7.  e =3.1, f =4.3

8.  h =8.6, g =12.3

9.  j =14.1, k =15.6

10. h =18.8, g =15.9

11. 368.9 in

12. 5.5 ft, 15 ft

13. v =1,848 ft, h =21,014 ft