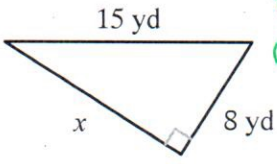
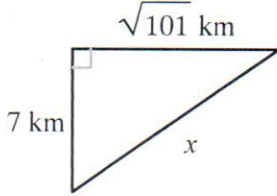


Unit 10 Review

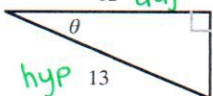
$a^2 + b^2 = c^2$

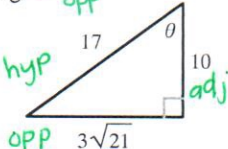
Find the missing side of each triangle using the Pythagorean Theorem.

1)  $8^2 + x^2 = 15^2$
 $64 + x^2 = 225$
 $x^2 = 161$
 $x = \sqrt{161}$ yd

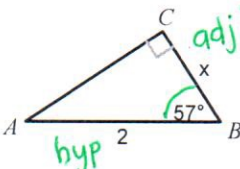
2)  $7^2 + \sqrt{101}^2 = x^2$
 $49 + 101 = x^2$
 $x^2 = 150$
 $x = \sqrt{150}$ km


Find the value of the trig function indicated.

3) $\sec \theta = \frac{\text{hyp}}{\text{adj}}$  $\sec \theta = \frac{13}{12}$

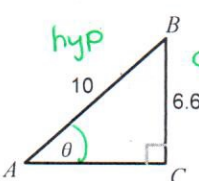
4) $\csc \theta = \frac{\text{hyp}}{\text{opp}}$  $\csc \theta = \frac{17}{3\sqrt{21}}$

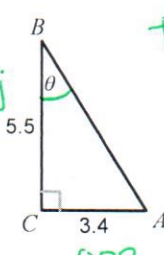
Find the measure of each side indicated. Round to the nearest tenth.

5)  $\text{adj}^2 \cdot \cos 57^\circ = \frac{x}{2}$
 $x = 2 \cos 57^\circ$
 $x = 1.1$


6)  $\tan 69^\circ = \frac{x}{13}$
 $x = 13 \tan 69^\circ$
 $x = 33.9$

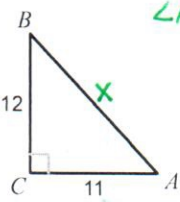
Find the measure of each angle indicated. Round to the nearest tenth.

7)  $\sin \theta = \frac{6.6}{10}$
 $\theta = \sin^{-1}(\frac{6.6}{10})$
 $\theta = 41.3^\circ$

8)  $\tan \theta = \frac{3.4}{5.5}$
 $\theta = \tan^{-1}(\frac{3.4}{5.5})$
 $\theta = 31.7^\circ$

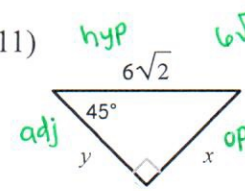
Solve each triangle. Round answers to the nearest tenth.


9)  $\angle B = 180 - 90 - 61$
 $\angle B = 29^\circ$
 $\sin 61^\circ = \frac{11.7}{x}$
 $x = \frac{11.7}{\sin 61^\circ}$
 $x = 13.4$
 $\tan 61^\circ = \frac{11.7}{y}$
 $y = \frac{11.7}{\tan 61^\circ}$
 $y = 6.5$

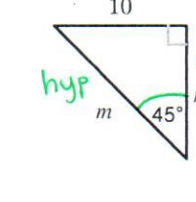
10)  $\angle A: \tan A = \frac{12}{11}$
 $A = \tan^{-1}(\frac{12}{11})$
 $A = 47.5^\circ$
 $\angle B = 180 - 90 - 47.5$
 $\angle B = 42.5^\circ$
 $11^2 + 12^2 = x^2$
 $121 + 144 = x^2$
 $x^2 = 265$
 $x = 16.3$

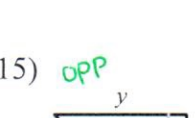
Round your answer to the nearest hundredth.

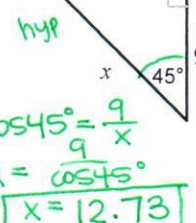
Find the missing side lengths. Leave your answers as radicals in simplest form.

11)  $6\sqrt{2} \cdot \sin 45^\circ = \frac{x}{6\sqrt{2}} \cdot 6\sqrt{2}$
 $x = 6\sqrt{2} \sin 45^\circ$
 $x = 6$

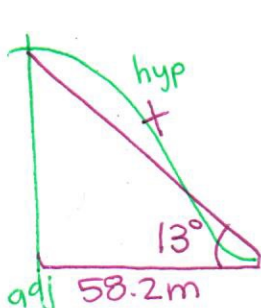
13)  $10 \cdot \cos 45^\circ = \frac{y}{10} \cdot 10$
 $y = 10 \cos 45^\circ$
 $y = 6$

15)  $9 \cdot \sin 45^\circ = \frac{y}{9} \cdot 9$
 $m = \frac{10}{\sin 45^\circ}$
 $m = 14.1$

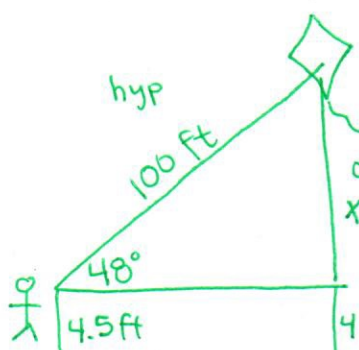
17)  $10 \cdot \tan 45^\circ = \frac{n}{10} \cdot 10$
 $n = 10 \tan 45^\circ$
 $n = 10$

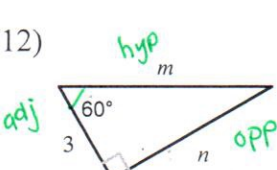
19)  $9 \cdot \cos 45^\circ = \frac{x}{9} \cdot 9$
 $x = 9 \cos 45^\circ$
 $x = 12.73$


17) The angle of elevation from the base of a waterslide to the top is about 13° . The slide extends horizontally (along the ground) about 58.2 meters. How long is the slide?

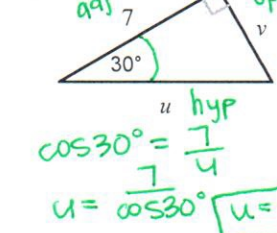
 $\cos 13^\circ = \frac{58.2}{x}$
 $x = \frac{58.2}{\cos 13^\circ}$
 $x = 59.73m$

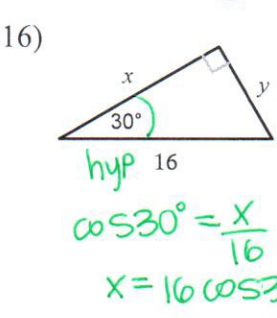
19) A boy flies a kite with a 100-foot-long string. The angle of elevation of the string is 48° . How high is the kite from the ground? (Note: The boy is 4.5 feet tall).

 $\sin 48^\circ = \frac{x}{100}$
 $x = 100 \sin 48^\circ$
 $x = 74.31 \text{ ft} + 4.5 \text{ ft}$
 $x = 78.81 \text{ ft}$

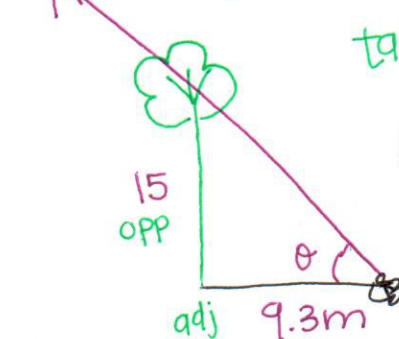
12)  $\cos 60^\circ = \frac{3}{m}$
 $m = \frac{3}{\cos 60^\circ}$
 $m = 6$

14)  $3 \cdot \tan 60^\circ = \frac{n}{3} \cdot 3$
 $n = 3 \tan 60^\circ$
 $n = 5.2$

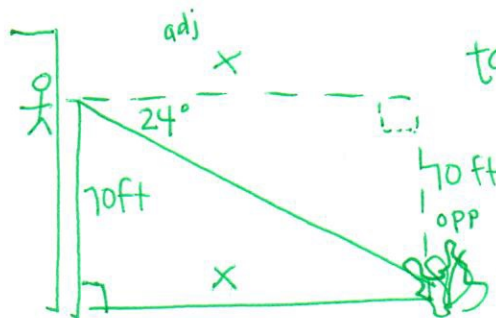
16)  $\sin 30^\circ = \frac{y}{16}$
 $y = 16 \sin 30^\circ$
 $y = 8$

18)  $\cos 30^\circ = \frac{x}{16}$
 $x = 16 \cos 30^\circ$
 $x = 13.86$

18) The height of a tree is 15 meters. What is the angle of elevation of the sun when the tree casts a shadow that is 9.3 meters long on level ground?

 $\tan \theta = \frac{15}{9.3}$
 $\theta = \tan^{-1} \left(\frac{15}{9.3} \right)$
 $\theta = 58.20^\circ$

20) A fire ranger stands at an observation window 70 feet above the ground. She sees a fire in the distance. She takes a reading of the angle of depression and finds it to be 24° . To the nearest tenth of a foot, how far away from the base of the tower is the fire?

 $\tan 24^\circ = \frac{70}{x}$
 $x = \frac{70}{\tan 24^\circ}$
 $x = 157.22 \text{ ft}$