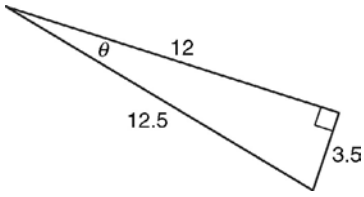
Name _____ Date _____ Class _____

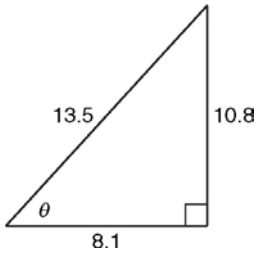
LESSON 10-1

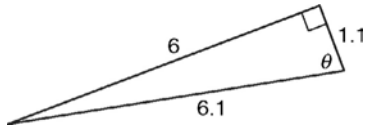
Practice C

Right-Angle Trigonometry

Find the value of the sine, cosine, and tangent functions for θ.

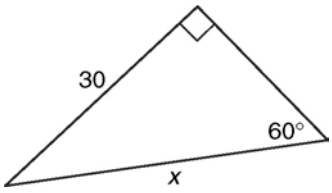
1. 

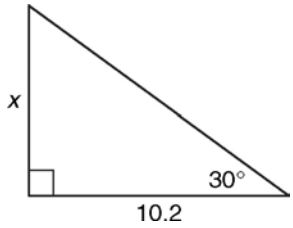
2. 

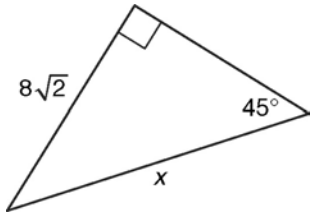
3. 

_____ _____ _____

Use a trigonometric function to find the value of *x*.

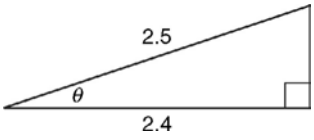
4. 

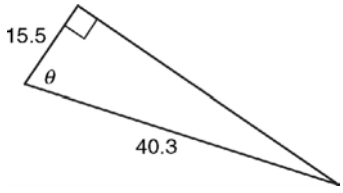
5. 

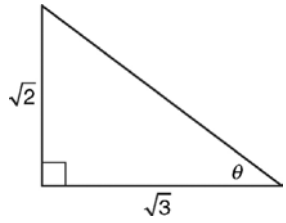
6. 

_____ _____ _____

Find the values of the six trigonometric functions for θ.

7. 

8. 

9. 

_____ _____ _____

_____ _____ _____

_____ _____ _____

Solve.

10. A kite string is 102 feet long. The angle between the kite string and the ground is 54.9°. How high is the kite? _____

11. A surveyor stands 186 feet from the base of a cliff and measures the angle of elevation to be 56.6°. His eye level is 5 feet above the ground. What is the height of the cliff to the nearest foot? _____

12. The pilot of a hot air balloon measures the angle of depression to a landing spot to be 36.7°. If the pilot's altitude is 1752 meters, what is the horizontal distance to the landing spot to the nearest meter? _____

10-1 RIGHT-ANGLE TRIGONOMETRY

Practice A

1. a. $\sin\theta = \frac{48}{50} = \frac{24}{25}$

   b. $\cos\theta = \frac{14}{50} = \frac{7}{25}$

   c. $\tan\theta = \frac{48}{14} = \frac{24}{7}$

2. $\frac{3}{5}, \frac{4}{5}, \frac{3}{4}$

3. $\frac{9}{41}, \frac{40}{41}, \frac{9}{40}$

4. $\frac{12}{13}, \frac{5}{13}, \frac{12}{5}$

5.a. Cosine

   b. $\cos 45° = \frac{x}{12\sqrt{2}}$

   c. $\cos 45° = \frac{\sqrt{2}}{2}$

   d. $x = 12$

6. 10
7. 8
8. 9
9. 45 ft

Practice B

1. $\frac{4}{5}; \frac{3}{5}; \frac{4}{3}$

2. $\frac{9}{41}; \frac{40}{41}; \frac{9}{40}$

3. $\frac{12}{13}; \frac{5}{13}; \frac{12}{5}$

4. $6\sqrt{3}$

5. $\frac{44\sqrt{3}}{3}$

6. 7

7. $\sin\theta = \frac{12}{13}; \cos\theta = \frac{5}{13}; \tan\theta = \frac{12}{5}$

   $\csc\theta = \frac{13}{12}; \sec\theta = \frac{13}{5}; \cot\theta = \frac{5}{12}$

8. $\sin\theta = \frac{3}{5}; \cos\theta = \frac{4}{5}; \tan\theta = \frac{3}{4}$

   $\csc\theta = \frac{5}{3}; \sec\theta = \frac{5}{4}; \cot\theta = \frac{4}{3}$

9. $\sin\theta = \frac{9}{41}; \cos\theta = \frac{40}{41}; \tan\theta = \frac{9}{40}$

   $\csc\theta = \frac{41}{9}; \sec\theta = \frac{41}{40}; \cot\theta = \frac{40}{9}$

10. 47 ft
11. 162 ft
12. 4817 m

Practice C

1. $\frac{7}{25}; \frac{24}{25}; \frac{7}{24}$

2. $\frac{4}{5}; \frac{3}{5}; \frac{4}{3}$

3. $\frac{60}{61}; \frac{11}{61}; \frac{60}{11}$

4. $20\sqrt{3}$

5. $3.4\sqrt{3}$

6. 16

7. $\sin\theta = \frac{7}{25}; \cos\theta = \frac{24}{25};$

   $\tan\theta = \frac{7}{24}; \csc\theta = \frac{25}{7};$

   $\sec\theta = \frac{25}{24}; \cot\theta = \frac{24}{7}$

8. $\sin\theta = \frac{12}{13}; \cos\theta = \frac{5}{13};$

   $\tan\theta = \frac{12}{5}; \csc\theta = \frac{13}{12};$

   $\sec\theta = \frac{13}{5}; \cot\theta = \frac{5}{12}$

9. $\sin\theta = \frac{\sqrt{10}}{5}; \cos\theta = \frac{\sqrt{15}}{5};$

   $\tan\theta = \frac{\sqrt{6}}{3}; \csc\theta = \frac{\sqrt{10}}{2};$

   $\sec\theta = \frac{\sqrt{15}}{3}; \cot\theta = \frac{\sqrt{6}}{2}$

10. 83.5 ft
11. 287 ft
12. 2350 m

Reteach

1. $\frac{3}{5}$ $\frac{4}{5}$ $\frac{3}{4}$
2. $\frac{12}{13}$ $\frac{5}{13}$ $\frac{12}{5}$
3. $\frac{8}{17}$ $\frac{15}{17}$ $\frac{8}{15}$