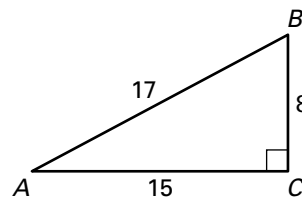


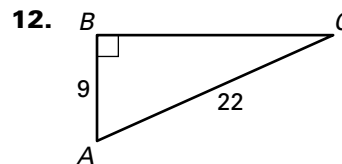
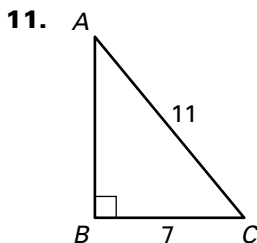
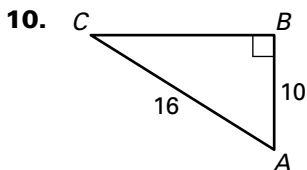
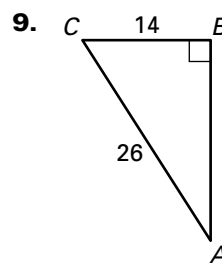
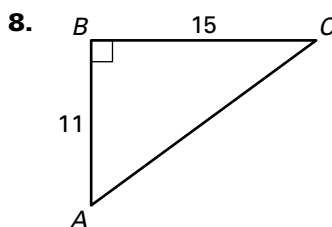
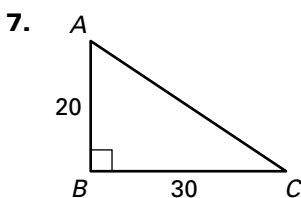
**LESSON 7.7** **Practice A**  
For use with pages 503–509

**Match the trigonometric expression with the correct ratio. Some ratios may be used more than once, and some may not be used at all.**

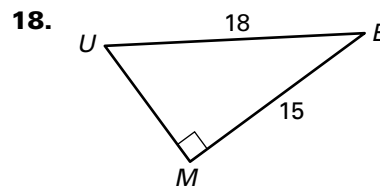
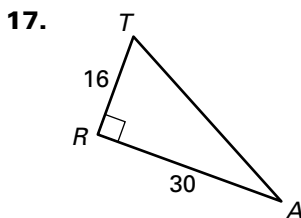
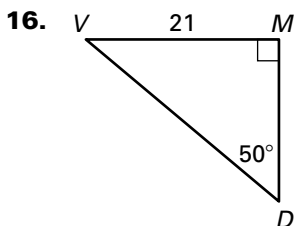
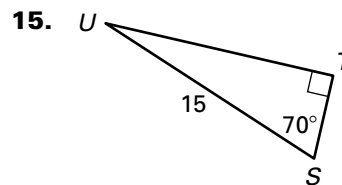
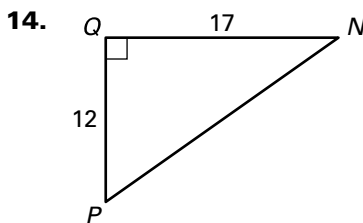
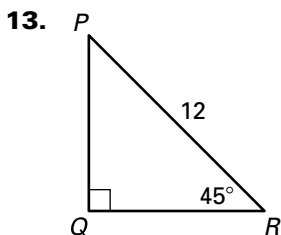
- |                    |                    |                   |
|--------------------|--------------------|-------------------|
| 1. $\sin A$        | 2. $\cos A$        | 3. $\tan A$       |
| 4. $\sin B$        | 5. $\cos B$        | 6. $\tan B$       |
| A. $\frac{8}{17}$  | B. $\frac{15}{17}$ | C. $\frac{17}{8}$ |
| D. $\frac{17}{15}$ | E. $\frac{8}{15}$  | F. $\frac{15}{8}$ |



**Use a calculator to approximate the measure of  $\angle A$  to the nearest tenth of a degree.**



**Solve the right triangle. Round decimal answers to the nearest tenth. Check that your answer is reasonable.**



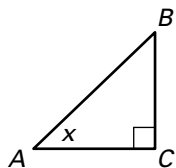
**LESSON 7.7** **Practice A** *continued*  
For use with pages 503–509

Let  $\angle A$  be an acute angle in a right triangle. Approximate the measure of  $\angle A$  to the nearest tenth of a degree.

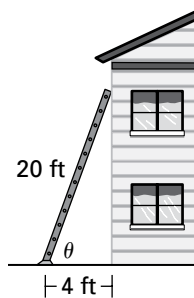
19.  $\sin A = 0.45$       20.  $\tan A = 0.9$       21.  $\sin A = 0.76$       22.  $\cos A = 0.32$   
 23.  $\tan A = 5.2$       24.  $\cos A = 0.24$       25.  $\sin A = 0.15$       26.  $\cos A = 0.66$

27. **Multiple Choice** Using the diagram to the right, for what value of  $x$  does  $\sin A = \cos A$ ?

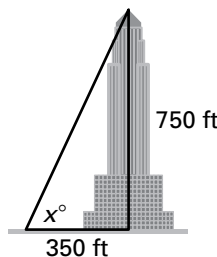
- A.  $30^\circ$       B.  $45^\circ$   
 C.  $60^\circ$       D. none



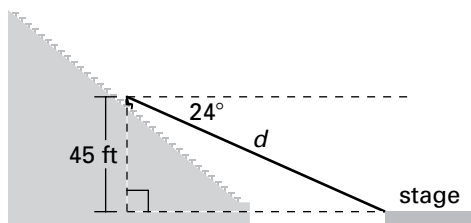
28. **Ladder** You lean a 20 foot ladder against a wall. The base of the ladder is 4 feet from the wall. What angle  $\theta$  does the ladder make with the ground?



29. **Skyscraper** You are standing 350 feet away from a skyscraper that is 750 feet tall. What is the angle of elevation from you to the top of the building?



30. **Concert** You attend a music concert with some friends and sit halfway up the bleachers in the arena. The angle of depression from your horizontal line of sight to the stage is  $24^\circ$ . If your seat is 45 feet above stage level, what is your actual distance  $d$  from the stage? Round to the nearest foot.



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## Lesson 7.6, continued

### Focus On 7.6

#### Practice

1.  $\cot D = \frac{24}{7} \approx 3.4286$ ;  $\sec D = \frac{25}{24} \approx 1.0417$ ;

$\csc D = \frac{25}{7} \approx 3.5714$

2.  $\cot D = \frac{9}{40} = 0.225$ ;  $\sec D = \frac{41}{9} \approx 4.5556$ ;

$\csc D = \frac{41}{40} = 1.025$

3.  $\cot D = \frac{60}{11} \approx 5.4545$ ;  $\sec D = \frac{61}{60} \approx 1.0167$ ;

$\csc D = \frac{61}{11} \approx 5.5455$

4.  $\cot D = \frac{20}{21} \approx 0.9524$ ;  $\sec D = \frac{29}{20} = 1.45$ ;

$\csc D = \frac{29}{21} \approx 1.3810$

5.  $\cot D = \frac{72}{65} \approx 1.1077$ ;  $\sec D = \frac{97}{72} \approx 1.3472$ ;

$\csc D = \frac{97}{65} \approx 1.4923$

6.  $\cot D = \frac{80}{39} \approx 2.0513$ ;  $\sec D = \frac{89}{80} = 1.1125$ ;

$\csc D = \frac{89}{39} \approx 2.2821$

7. 9.7    8. 13.5    9. 21.8

10. approximately 215.58 ft    11. 37 m

#### Review for Mastery

1.  $\cot D = \frac{4}{3} \approx 1.3333$ ;  $\sec D = \frac{5}{4} \approx 1.25$ ;

$\csc D = \frac{5}{3} \approx 1.6667$

2.  $\cot D = \frac{36}{77} \approx 0.4675$ ;  $\sec D = \frac{85}{36} \approx 2.3611$ ;

$\csc D = \frac{85}{77} \approx 1.1039$

3.  $\cot D = \frac{48}{55} \approx 0.8727$ ;  $\sec D = \frac{73}{48} \approx 1.5208$ ;

$\csc D = \frac{73}{55} \approx 1.3273$

4. 17.8    5. 7.0    6. 13.3

### Lesson 7.7

#### Practice Level A

1. A    2. B    3. E    4. B    5. A    6. F

7.  $m\angle A = 56.3^\circ$     8.  $m\angle A = 53.7^\circ$

9.  $m\angle A = 32.6^\circ$     10.  $m\angle A = 51.3^\circ$

11.  $m\angle A = 39.5^\circ$     12.  $m\angle A = 65.9^\circ$

13.  $m\angle P = 45^\circ$ ,  $PQ \approx 8.5$ ,  $QR \approx 8.5$

14.  $m\angle P \approx 54.8^\circ$ ,  $m\angle N \approx 35.2^\circ$ ,  $PN \approx 20.8$

15.  $TU \approx 14.1$ ,  $TS \approx 5.1$ ,  $m\angle U = 20^\circ$

16.  $m\angle V = 40^\circ$ ,  $DM \approx 17.6$ ,  $DV \approx 27.4$

17.  $m\angle T \approx 61.9^\circ$ ,  $m\angle A \approx 28.1^\circ$ ,  $AT = 34$

18.  $UM \approx 9.9$ ,  $m\angle U \approx 56.4^\circ$ ,  $m\angle E \approx 33.6^\circ$

19.  $m\angle A \approx 26.7^\circ$     20.  $m\angle A \approx 42.0^\circ$

21.  $m\angle A \approx 49.5^\circ$     22.  $m\angle A \approx 71.3^\circ$

23.  $m\angle A \approx 79.1^\circ$     24.  $m\angle A \approx 76.1^\circ$

25.  $m\angle A \approx 8.6^\circ$     26.  $m\angle A \approx 48.7^\circ$     27. B

28.  $78.5^\circ$     29. about  $65^\circ$     30. 111 ft

#### Practice Level B

1. 16.6    2.  $65.0^\circ$     3. 25.0    4.  $m\angle P = 53^\circ$ ,  
 $PQ \approx 13.2$ ,  $QR \approx 17.6$

5.  $m\angle P \approx 58.6^\circ$ ,  
 $m\angle N \approx 31.4^\circ$ ,  $PN \approx 21.1$

6.  $TU \approx 21.9$ ,  
 $m\angle S = 72.3^\circ$ ,  $m\angle U = 17.7^\circ$

7.  $m\angle V = 39^\circ$ ,  
 $DM \approx 11.3$ ,  $DV \approx 18.0$

8.  $m\angle T = 66^\circ$ ,  
 $TR \approx 14.7$ ,  $AT \approx 36.1$

9.  $UM \approx 20.6$ ,  
 $m\angle U \approx 42.7^\circ$ ,  $m\angle E \approx 47.3^\circ$

10.  $m\angle C = 64^\circ$ ,  
 $AB \approx 4.0$ ,  $BC \approx 2.0$

11.  $m\angle V = 70^\circ$ ,  
 $VW \approx 4.1$ ,  $WX \approx 11.3$

12.  $m\angle J = 58.4^\circ$ ,  
 $JL \approx 13.4$ ,  $LK \approx 11.4$

13.  $21.1^\circ$     14.  $38.7^\circ$

15.  $15.7^\circ$     16.  $69.5^\circ$     17.  $22.8^\circ$     18.  $83.7^\circ$

19.  $70.1^\circ$     20.  $39.6^\circ$     21. about 84.02 ft

22. about 499.30 ft    23. about 191.5 in. or about  
15 ft 11.5 in.; about  $4.2^\circ$ ; Yes, the angle is less than  
 $4.78^\circ$ .

24.  25. about 1039.2 ft    26. about 1648.5 ft

27. about 609.3 ft

#### Practice Level C

1.  $m\angle A = 51.9^\circ$     2.  $m\angle A = 74.9^\circ$

3.  $m\angle A = 11.5^\circ$

4.  $m\angle P = 57^\circ$ ,  $PQ \approx 9.8$ ,  $QR \approx 15.1$

5.  $m\angle P \approx 59.7^\circ$ ,  $m\angle N \approx 30.3^\circ$ ,  $PN \approx 13.9$

6.  $JL \approx 10.2$ ,  $LK \approx 4.7$ ,  $m\angle J = 27.7^\circ$

7.  $m\angle V = 73^\circ$ ,  $WX \approx 32.5$ ,  $WV \approx 9.9$

8.  $m\angle C = 64.5^\circ$ ,  $AB \approx 3.7$ ,  $BC \approx 1.8$

9.  $UM \approx 17.2$ ,  $m\angle U \approx 17.1^\circ$ ,  $m\angle E \approx 72.9^\circ$

10.  $TR \approx 2.2$ ,  $RA \approx 6.1$ ,  $m\angle T = 70^\circ$