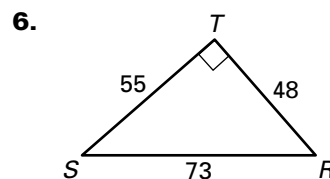
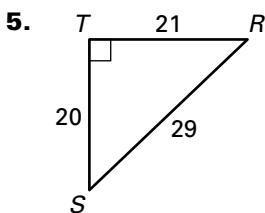
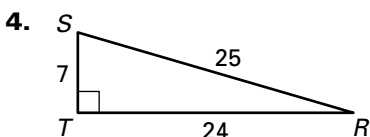
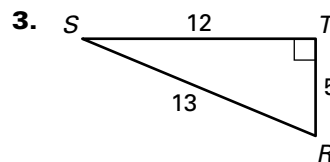
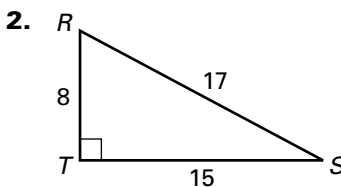
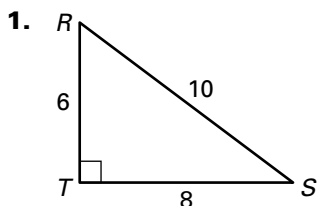


LESSON
7.6

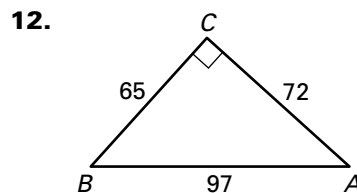
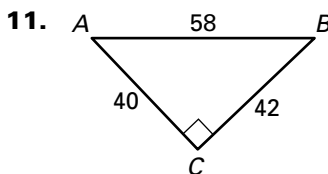
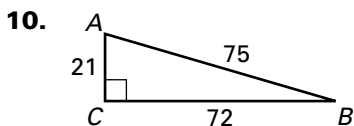
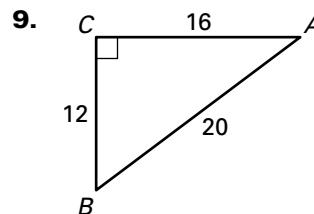
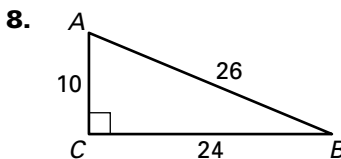
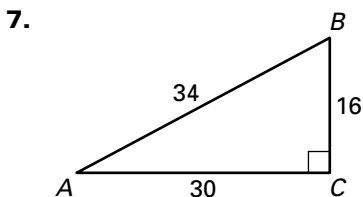
Practice A

For use with pages 491–498

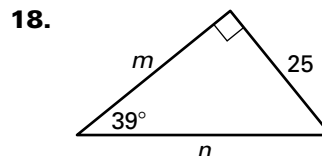
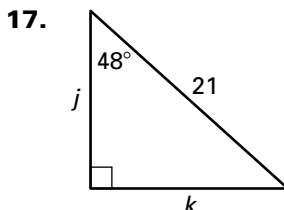
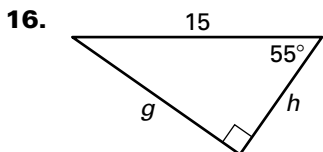
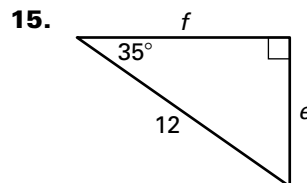
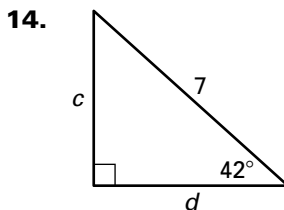
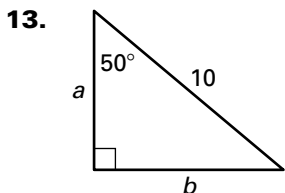
Find $\sin R$ and $\sin S$. Write each answer as a fraction and as a decimal. Round to four decimal places, if necessary.



Find $\cos A$ and $\cos B$. Write each answer as a fraction and as a decimal. Round to four decimal places, if necessary.



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

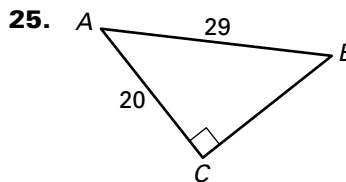
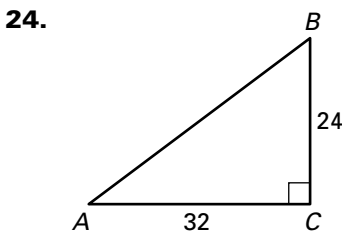
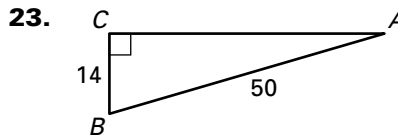
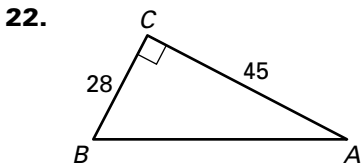


LESSON 7.6 Practice A *continued*
For use with pages 491–498

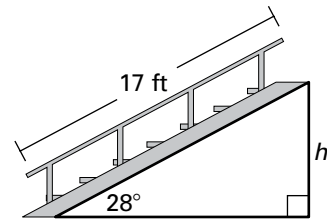
Use the $45^\circ\text{-}45^\circ\text{-}90^\circ$ Triangle Theorem or the $30^\circ\text{-}60^\circ\text{-}90^\circ$ Triangle Theorem to find the sine and cosine of the angle.

19. a 30° angle 20. a 45° angle 21. a 60° angle

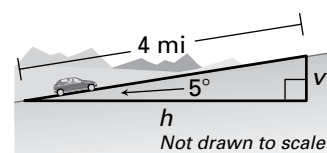
Find the unknown side length. Then find $\sin A$ and $\cos A$. Write each answer as a fraction in simplest form and as a decimal. Round to four decimal places, if necessary.



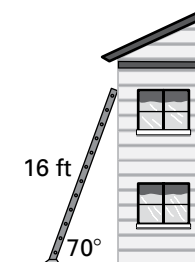
26. **Staircase** A staircase has an angle of elevation of 28° and covers a total distance of 17 feet. To the nearest foot, what is the vertical height h covered by the staircase?



27. **Highway** 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 mi = 5280 ft) Round your answer to the nearest foot.

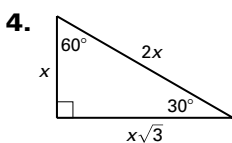


28. **Ladder** You lean a 16 foot ladder against the wall. If the ladder makes an angle of 70° with the ground, how far away from the wall is the base of the ladder? Round your answer to the nearest tenth of a foot.



Lesson 7.5, continued

3. True in all cases except when $x = 90^\circ$ or $x = 0^\circ$; because $\tan 0^\circ = 0$ and $\tan 90^\circ$ is undefined.



Using the diagram, $\tan 30^\circ = \frac{1}{\sqrt{3}}$ and

$\tan 60^\circ = \sqrt{3}$. If $a^\circ = b^\circ = 30^\circ$,

$\tan a^\circ + \tan b^\circ = \frac{1}{\sqrt{3}} + \frac{1}{\sqrt{3}} + \frac{2}{\sqrt{3}}$, but

$\tan(a^\circ + b^\circ) = \tan(30^\circ + 30^\circ) = \tan 60^\circ = \sqrt{3}$.

So, $\tan a^\circ + \tan b^\circ \neq \tan(a^\circ + b^\circ)$.

5. Sketch 1 6. Sketch 2 7. Sketch 3

Lesson 7.6

Practice Level A

- $\sin R = \frac{4}{5} = 0.8$, $\sin S = \frac{3}{5} = 0.6$
- $\sin R = \frac{15}{17} \approx 0.8824$, $\sin S = \frac{8}{17} \approx 0.4706$
- $\sin R = \frac{12}{13} \approx 0.9231$, $\sin S = \frac{5}{13} \approx 0.3846$
- $\sin R = \frac{7}{25} = 0.28$, $\sin S = \frac{24}{25} = 0.96$
- $\sin R = \frac{20}{29} \approx 0.6897$, $\sin S = \frac{21}{29} \approx 0.7241$
- $\sin R = \frac{55}{73} \approx 0.7534$, $\sin S = \frac{48}{73} \approx 0.6575$
- $\cos A = \frac{15}{17} \approx 0.8824$, $\cos B = \frac{8}{17} \approx 0.4706$
- $\cos A = \frac{5}{13} \approx 0.3846$, $\cos B = \frac{12}{13} \approx 0.9231$
- $\cos A = \frac{4}{5} = 0.8$, $\cos B = \frac{3}{5} = 0.6$
- $\cos A = \frac{7}{25} = 0.28$, $\cos B = \frac{24}{25} = 0.96$
- $\cos A = \frac{20}{29} \approx 0.6897$, $\cos B = \frac{21}{29} \approx 0.7241$
- $\cos A = \frac{72}{97} \approx 0.7423$, $\cos B = \frac{65}{97} \approx 0.6701$
- $a \approx 6.4$, $b \approx 7.7$ 14. $c \approx 4.7$, $d \approx 5.2$
- $e \approx 6.9$, $f \approx 9.8$ 16. $g \approx 12.3$, $h \approx 8.6$
- $j \approx 14.1$, $k \approx 15.6$ 18. $m \approx 30.9$, $n \approx 39.7$
- $\sin 30^\circ = 0.5$, $\cos 30^\circ = \frac{\sqrt{3}}{2}$
- $\sin 45^\circ = \cos 45^\circ = \frac{\sqrt{2}}{2}$

21. $\sin 60^\circ = \frac{\sqrt{3}}{2}$, $\cos 60^\circ = 0.5$

22. $AB = 53$, $\sin A = \frac{28}{53} \approx 0.5283$,

$\cos A = \frac{45}{53} \approx 0.8491$

23. $AC = 48$, $\sin A = \frac{7}{25} = 0.28$,

$\cos A = \frac{24}{25} = 0.96$

24. $AB = 40$, $\sin A = \frac{3}{5} = 0.6$, $\cos A = \frac{4}{5} = 0.8$

25. $BC = 21$, $\sin A = \frac{21}{29} \approx 0.7241$,

$\cos A = \frac{20}{29} \approx 0.6897$ 26. 8 ft

27. $v \approx 1,841$ ft, $h \approx 21,040$ ft 28. 5.5 ft

Practice Level B

- $\sin R = \frac{3}{5} = 0.6$, $\sin S = \frac{4}{5} = 0.8$
- $\sin R = \frac{12}{13} \approx 0.9231$, $\sin S = \frac{5}{13} \approx 0.3846$
- $\sin R = \frac{8}{17} \approx 0.4706$, $\sin S = \frac{15}{17} \approx 0.8824$
- $\sin R = \frac{20}{29} \approx 0.6897$, $\sin S = \frac{21}{29} \approx 0.7241$
- $\sin R = \frac{28}{53} \approx 0.5283$, $\sin S = \frac{45}{53} \approx 0.8491$
- $\sin R = \frac{44}{125} = 0.352$, $\sin S = \frac{117}{125} = 0.936$
- $\cos A = \frac{12}{13} \approx 0.9231$, $\cos B = \frac{5}{13} \approx 0.3846$
- $\cos A = \frac{12}{37} \approx 0.3243$, $\cos B = \frac{35}{37} \approx 0.9459$
- $\cos A = \frac{4}{5} = 0.8$, $\cos B = \frac{3}{5} = 0.6$
- $\cos A = \frac{7}{25} = 0.28$, $\cos B = \frac{24}{25} = 0.96$
- $\cos A = \frac{48}{73} \approx 0.6575$, $\cos B = \frac{55}{73} \approx 0.7534$
- $\cos A = \frac{72}{97} \approx 0.7423$, $\cos B = \frac{65}{97} \approx 0.6701$
- $a \approx 9.1$, $b \approx 16.7$ 14. $c \approx 19.6$, $d \approx 25.9$
- $r \approx 28.9$, $s \approx 35.7$ 16. $t \approx 24.9$, $u \approx 20.1$
- $x \approx 8.2$, $y \approx 8.8$ 18. $g \approx 56.6$, $h \approx 35.6$
- $\sin 30^\circ = 0.5$, $\cos 30^\circ = \frac{\sqrt{3}}{2}$
- $\sin 45^\circ = \cos 45^\circ = \frac{\sqrt{2}}{2}$