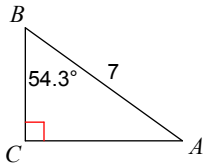


Chapter 13: Trigonometric Ratios and Functions

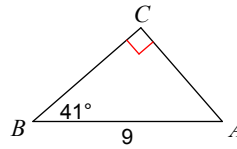
Date _____ Period _____

Solve each triangle. Round answers to the nearest tenth.

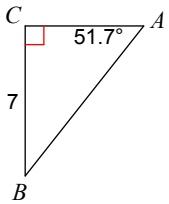
1)



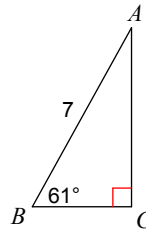
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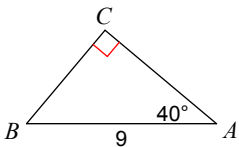
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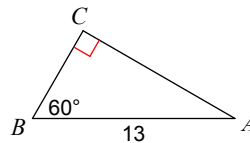
4)



5)



6)

**Convert each degree measure into radians.**

7) -120°

8) 120°

9) 160°

10) -685°

Convert each radian measure into degrees.

11) $-\frac{17\pi}{3}$

12) $-\frac{26\pi}{9}$

13) $-\frac{\pi}{4}$

14) $\frac{4\pi}{3}$

Find the exact value of each trigonometric function.

15) $\csc -600^\circ$

16) $\sec -480^\circ$

17) $\cot 930^\circ$

18) $\csc -900^\circ$

19) $\cot -240^\circ$

20) $\sin -300^\circ$

21) $\sin -\frac{5\pi}{2}$

22) $\sec \frac{2\pi}{3}$

23) $\sin -\frac{17\pi}{4}$

24) $\cot \frac{19\pi}{6}$

25) $\csc -\frac{23\pi}{4}$

26) $\sin -\frac{11\pi}{3}$

Find a positive and a negative coterminal angle for each given angle.

27) 285°

28) -652°

29) 215°

30) -240°

31) $\frac{11\pi}{12}$

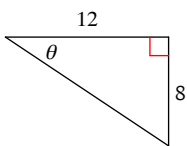
32) $\frac{4\pi}{3}$

33) $\frac{19\pi}{18}$

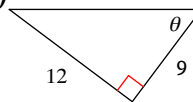
34) 0

Find the value of the trig function indicated.

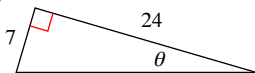
35) $\cot \theta$



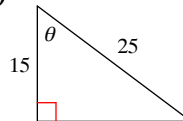
36) $\cos \theta$



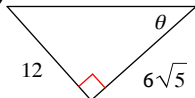
37) $\cot \theta$



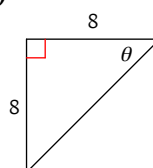
38) $\cos \theta$

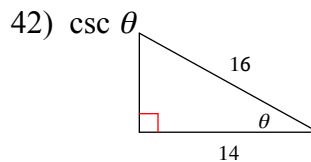
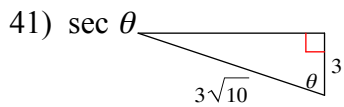


39) $\csc \theta$



40) $\cos \theta$





Solve each triangle, if possible. Check for special cases. Round your answers to the nearest tenth.

43) $m\angle C = 158^\circ$, $b = 32$ ft, $c = 27$ ft

44) $m\angle A = 137^\circ$, $a = 31$ m, $c = 11$ m

45) $m\angle A = 132^\circ$, $m\angle B = 36^\circ$, $a = 43$ km

46) $m\angle B = 46^\circ$, $b = 23$ ft, $a = 16$ ft

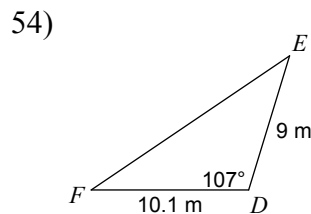
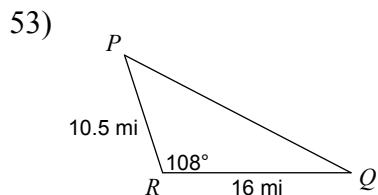
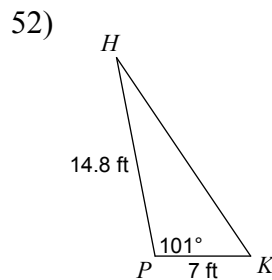
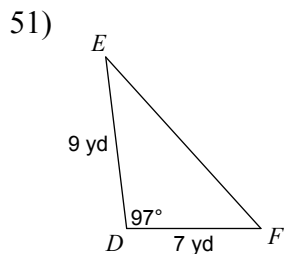
47) $m\angle B = 59^\circ$, $m\angle C = 91^\circ$, $a = 7$ in

48) $m\angle A = 21^\circ$, $c = 29$ cm, $a = 20$ cm

49) $m\angle C = 47^\circ$, $m\angle A = 56^\circ$, $c = 30$ yd

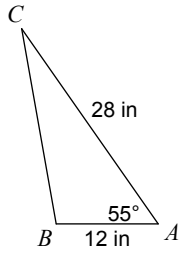
50) $m\angle A = 19^\circ$, $m\angle B = 46^\circ$, $a = 14$ cm

Find the area of each triangle to the nearest tenth.

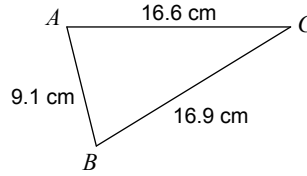


Solve each triangle. Round your answers to the nearest tenth.

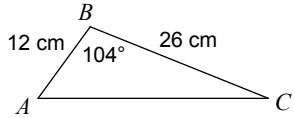
55)



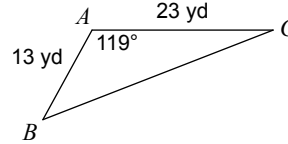
56)



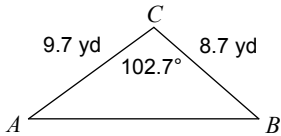
57)



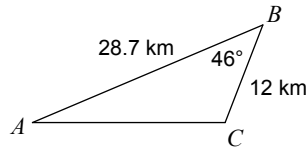
58)



59)

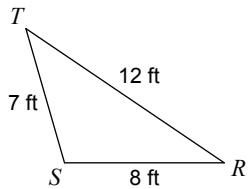


60)

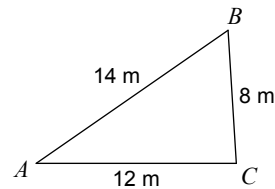


Find the area of each triangle to the nearest tenth.

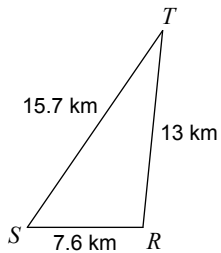
61)



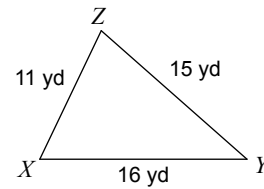
62)



63)



64)



Answers to Chapter 13: Trigonometric Ratios and Functions (ID: 1)

- | | | | |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------|
| 1) $m\angle A = 35.7^\circ$, $b = 5.7$, $a = 4.1$ | 2) $m\angle A = 49^\circ$, $a = 6.8$, $b = 5.9$ | | |
| 3) $m\angle B = 38.3^\circ$, $b = 5.5$, $c = 8.9$ | 4) $m\angle A = 29^\circ$, $b = 6.1$, $a = 3.4$ | | |
| 5) $m\angle B = 50^\circ$, $a = 5.8$, $b = 6.9$ | 6) $m\angle A = 30^\circ$, $a = 6.5$, $b = 11.3$ | | |
| 7) $-\frac{2\pi}{3}$ | 8) $\frac{2\pi}{3}$ | 9) $\frac{8\pi}{9}$ | 10) $-\frac{137\pi}{36}$ |
| 11) -1020° | 12) -520° | 13) -45° | 14) 240° |
| 15) $\frac{2\sqrt{3}}{3}$ | 16) -2 | 17) $\sqrt{3}$ | 18) Undefined |
| 19) $-\frac{\sqrt{3}}{3}$ | 20) $\frac{\sqrt{3}}{2}$ | 21) -1 | 22) -2 |
| 23) $-\frac{\sqrt{2}}{2}$ | 24) $\sqrt{3}$ | 25) $\sqrt{2}$ | 26) $\frac{\sqrt{3}}{2}$ |
| 27) 645° and -75° | 28) 68° and -292° | 29) 575° and -145° | 30) 120° and -600° |
| 31) $\frac{35\pi}{12}$ and $-\frac{13\pi}{12}$ | 32) $\frac{10\pi}{3}$ and $-\frac{2\pi}{3}$ | 33) $\frac{55\pi}{18}$ and $-\frac{17\pi}{18}$ | 34) 2π and -2π |
| 35) $\frac{3}{2}$ | 36) $\frac{3}{5}$ | 37) $\frac{24}{7}$ | 38) $\frac{3}{5}$ |
| 39) $\frac{3}{2}$ | 40) $\frac{\sqrt{2}}{2}$ | 41) $\sqrt{10}$ | 42) $\frac{8\sqrt{15}}{15}$ |
| 43) Not a triangle | 44) $m\angle B = 29^\circ$, $m\angle C = 14^\circ$, $b = 22$ m | | |
| 45) $m\angle C = 12^\circ$, $c = 12$ km, $b = 34$ km | 46) $m\angle C = 104^\circ$, $m\angle A = 30^\circ$, $c = 31$ ft | | |
| 47) $m\angle A = 30^\circ$, $c = 14$ in, $b = 12$ in | 48) $m\angle B = 127.7^\circ$, $m\angle C = 31.3^\circ$, $b = 44.2$ cm Or $m\angle B = 10.3^\circ$, $m\angle C = 148.7^\circ$, $b = 10$ cm | | |
| 49) $m\angle B = 77^\circ$, $a = 34$ yd, $b = 40$ yd | 50) $m\angle C = 115^\circ$, $b = 30.9$ cm, $c = 39$ cm | | |
| 51) 31.3 yd ² | 52) 50.8 ft ² | 53) 79.9 mi ² | 54) 43.5 m ² |
| 55) $m\angle B = 100^\circ$, $m\angle C = 25^\circ$, $a = 23.3$ in | 56) $m\angle C = 31.5^\circ$, $m\angle A = 76.1^\circ$, $m\angle B = 72.4^\circ$ | | |
| 57) $m\angle C = 22^\circ$, $m\angle A = 54^\circ$, $b = 31.2$ cm | 58) $m\angle B = 39.8^\circ$, $m\angle C = 21.2^\circ$, $a = 31.4$ yd | | |
| 59) $m\angle A = 36.2^\circ$, $m\angle B = 41.1^\circ$, $c = 14.4$ yd | 60) $m\angle C = 111^\circ$, $m\angle A = 23^\circ$, $b = 22.1$ km | | |
| 61) 26.9 ft ² | 62) 47.9 m ² | 63) 49.2 km ² | 64) 79.4 yd ² |