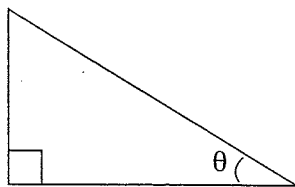


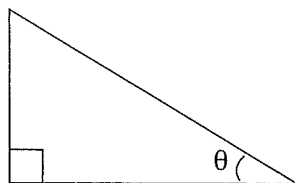
PRACTICE SET 6: TRIGONOMETRY

1. In the right triangle shown below, if $\tan \theta = \frac{3}{\sqrt{55}}$, then $\sin \theta = ?$



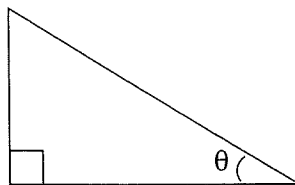
- A. $\frac{3}{8}$
- B. $\frac{9}{55}$
- C. $\frac{\sqrt{55}}{8}$
- D. $1 - \frac{3\sqrt{55}}{55}$
- E. $\sqrt{1 - \left(\frac{3\sqrt{55}}{55}\right)^2}$

2. In the right triangle shown below, if $\sin \theta = \frac{4}{13}$, then $\cos \theta = ?$



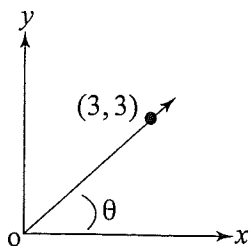
- F. $\frac{4}{3\sqrt{17}}$
- G. $\frac{4}{3}$
- H. $\frac{13}{3\sqrt{17}}$
- J. $\frac{3\sqrt{17}}{13}$
- K. $\frac{\sqrt{13}}{4}$

3. In the right triangle shown below, if $\cos \theta = \frac{2}{3}$, then $\tan \theta = ?$



- A. $\frac{2}{5}$
- B. $\frac{\sqrt{5}}{2}$
- C. $\frac{3}{\sqrt{5}}$
- D. $\frac{5}{2}$
- E. $\frac{2}{\sqrt{5}}$
4. If $0^\circ \leq \theta \leq 90^\circ$ and $\sin^2 \theta + \cos^2 \theta = 1$, what is $\sin \theta$ if $\cos \theta = \frac{1}{2}$?
- F. $\sqrt{3}$
- G. $\frac{\sqrt{2}}{2}$
- H. $\frac{1}{2}$
- J. $\frac{\sqrt{3}}{2}$
- K. $\frac{2}{\sqrt{3}}$

5. In the figure below, $\sin \theta = ?$



- A. $\frac{1}{2}$
- B. $\frac{\sqrt{3}}{2}$
- C. $\frac{\sqrt{2}}{2}$
- D. 1
- E. $\sqrt{2}$
6. If $\cos \theta \tan \theta = \sin \theta$, and $\sin \theta = \frac{\sqrt{7}}{4}$, what is $\cos \theta$?
- F. $\frac{\sqrt{7}}{3}$
- G. $\frac{3}{4}$
- H. $\frac{4}{\sqrt{7}}$
- J. $\frac{4}{3}$
- K. 4
7. If $0^\circ \leq \theta \leq 90^\circ$ and $4 \cos^2 \theta - 3 = 0$, then $\theta = ?$
- A. 0°
- B. 30°
- C. 45°
- D. 60°
- E. 90°

8. Whenever $\frac{\sin \theta}{\tan \theta}$ is defined, it is equivalent to which of the following?

F. $\cos \theta$

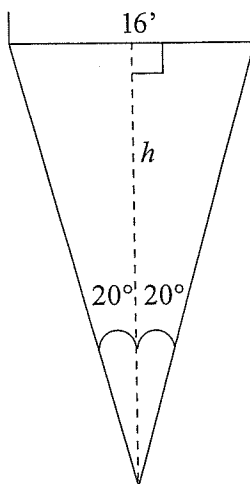
G. $\frac{1}{\cos \theta}$

H. $\frac{1}{\sin \theta}$

J. $\frac{1}{\cos^2 \theta}$

K. $\frac{\cos \theta}{\sin^2 \theta}$

9. A large sail is being sewn for a racing yacht, as shown in the figure below. Which of the following expressions could be used to calculate the height, h , of the sail?



A. $16 \tan 20^\circ$

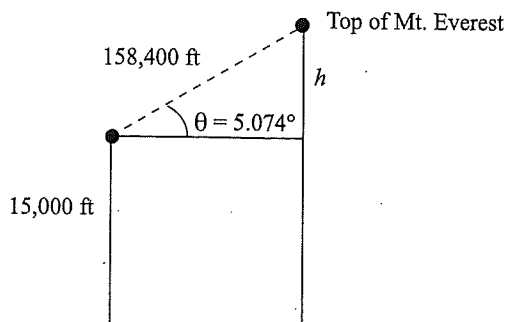
B. $8 \tan 40^\circ$

C. $8 \tan 20^\circ$

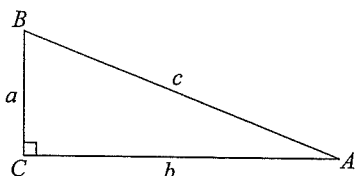
D. $\frac{8}{\tan 40^\circ}$

E. $\frac{8}{\tan 20^\circ}$

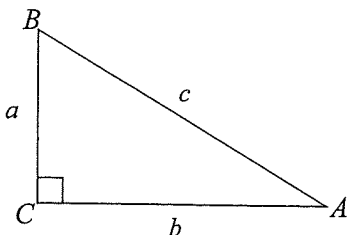
10. From the top of a 15,000-foot peak, the straight line distance to the top of Mount Everest is 14,978 feet. What is the height of Mount Everest if the angle of elevation, θ , from the top of the peak to the top of Mount Everest is 5.074° ?



- F. 14,009
 G. 14,064
 H. 16,022
 J. 29,009
 K. 29,064
11. Solve right triangle ABC if $a = 10.6$ cm and $c = 18.8$ cm. Which of the following are the measures of $\angle A$, $\angle B$, and b ?

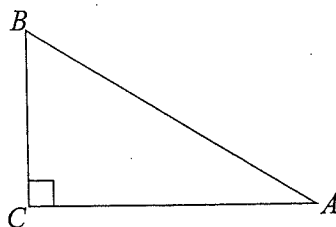


- A. $m\angle A = 26.4^\circ$, $m\angle B = 63.6^\circ$, $b = 13.4$
 B. $m\angle A = 34.4^\circ$, $m\angle B = 55.6^\circ$, $b = 15.5$
 C. $m\angle A = 63.4^\circ$, $m\angle B = 26.6^\circ$, $b = 14.2$
 D. $m\angle A = 50^\circ$, $m\angle B = 40^\circ$, $b = 12.1$
 E. $m\angle A = 34.4^\circ$, $m\angle B = 57.2^\circ$, $b = 15.5$
12. Solve right triangle ABC if $b = 4.8$ m and $m\angle A = 48^\circ$. Which of the following are the measures of $\angle B$, a , and c ?



- F. $m\angle B = 52^\circ$, $a = 5.3$, $c = 7.2$
 G. $m\angle B = 42^\circ$, $a = 4.1$, $c = 7.2$
 H. $m\angle B = 52^\circ$, $a = 4.3$, $c = 5.6$
 J. $m\angle B = 42^\circ$, $a = 5.3$, $c = 7.2$
 K. $m\angle B = 42^\circ$, $a = 5.4$, $c = 6.2$

13. In $\triangle ACB$ shown below, $\sin A = \frac{1}{2}$ and $\overline{BC} = 20$ meters. Which of the following are the measures of $\angle B$, \overline{AB} , and \overline{AC} ?



- A. $m\angle B = 30^\circ$, $\overline{AB} = 40$, $\overline{AC} = 34.6$
 B. $m\angle B = 45^\circ$, $\overline{AB} = 50$, $\overline{AC} = 24.8$
 C. $m\angle B = 60^\circ$, $\overline{AB} = 30$, $\overline{AC} = 36.6$
 D. $m\angle B = 60^\circ$, $\overline{AB} = 40$, $\overline{AC} = 34.6$
 E. $m\angle B = 50^\circ$, $\overline{AB} = 50$, $\overline{AC} = 24.6$
14. The graph of $y = 3 \sin x$ is the graph of $y = \sin x$:
- F. shrunk by a factor of $\frac{1}{3}$ in the horizontal direction.
 G. stretched by a factor of 3 in the vertical direction.
 H. stretched by a factor of $\frac{1}{3}$ in the vertical direction.
 J. shrunk by a factor of 3 in the vertical direction.
 K. stretched by a factor of $\frac{1}{3}$ in the horizontal direction.
15. The graph of $y = \sin x - \frac{\pi}{2}$ is the graph of $y = \sin x$ shifted:
- A. $\frac{\pi}{2}$ to the right.
 B. $\frac{\pi}{2}$ to the left.
 C. 2 to the left.
 D. $\frac{1}{2}$ to the left.
 E. $\frac{1}{2}$ to the right.