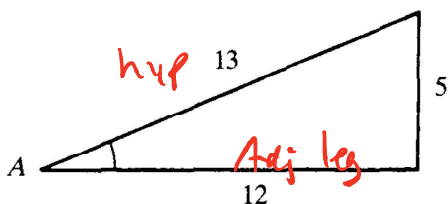
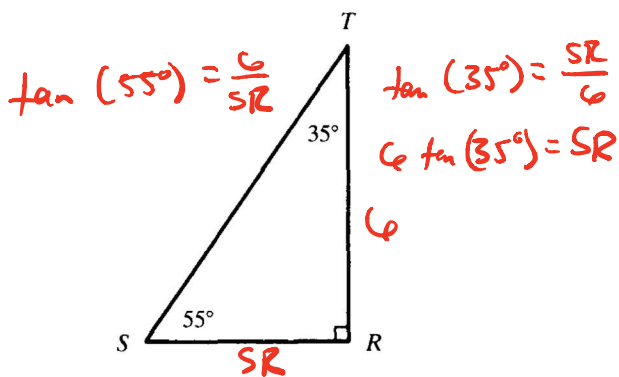


Orientation Exercises 14

1. The lengths of the sides of the triangle shown are 5, 12, and 13 units and A is the measure of one of the angles, as indicated in the figure. What is the $\cos A$?



- A. $\frac{5}{13}$ D. $\frac{12}{5}$
 B. $\frac{5}{12}$ E. $\frac{13}{5}$
 C. $\frac{12}{13}$
2. In $\triangle RST$, the measures of $\angle R$, $\angle S$, and $\angle T$ are 90° , 55° , and 35° , respectively. If \overline{TR} is 6 units long, how many units long is \overline{SR} ?



- A. 8 D. $6 \tan 35^\circ$
 B. 10 E. $6 \tan 55^\circ$
 C. $\tan 20^\circ$
3. Simplify $\sec^2 \theta - \tan^2 \theta$

- A. $2 \cos^2 \theta$ D. $1 - \cos^2 \theta$
 B. $1 - \sin^2 \theta$ E. $2 \sin \theta$
 C. 1

4. Simplify $\frac{\sin^2 x}{1 - \sin^2 x} = \frac{\sin^2 x}{\cos^2 x} = \tan^2 x$

- A. -1 D. $\tan^2 x$
 B. 0 E. $\cot^2 x$
 C. 1

5. Find the value of $\sin(60^\circ + 45^\circ)$.

- A. $\frac{\sqrt{6} + \sqrt{2}}{4}$
 B. $\frac{\sqrt{6} - \sqrt{2}}{4}$
 C. $\frac{\sqrt{2} - \sqrt{6}}{4}$

$$\begin{aligned} \sin 60^\circ \cos 45^\circ + \sin 45^\circ \cos 60^\circ \\ \frac{\sqrt{3}}{2} \cdot \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \cdot \frac{1}{2} \\ \frac{\sqrt{6}}{4} + \frac{\sqrt{2}}{4} \\ \frac{\sqrt{6} + \sqrt{2}}{4} \end{aligned}$$

- D. 1
 E. None of the above

6. $\cos 135^\circ \cos 30^\circ - \sin 135^\circ \sin 30^\circ = ?$ $\cos(135^\circ + 30^\circ)$

- A. $\cos 105^\circ$ D. $\cos 165^\circ$ $\cos(165^\circ)$
 B. $\sin 105^\circ$ E. $\cos 330^\circ$
 C. $\sin 165^\circ$

7. In the equation $y = a \cos b\theta$, where θ is in radians, $\frac{2\pi}{b}$ is the:

- A. amplitude
 B. pitch
 C. inclination of the curve
 D. period
 E. phase shift

8. The period of $y = \frac{3}{2} \cos 4\theta$, where θ is in radians, is:

- A. $\frac{3}{2}$ D. 4π
 B. $\frac{\pi}{2}$ E. 6π
 C. π

9. If $\tan\beta$ is in Quadrant III, find $\tan\beta$ in terms of $\cos\beta$.

- A. $\frac{\sqrt{1-\cos^2\beta}}{\cos\beta}$
 B. $-\frac{\sqrt{1-\cos\beta}}{\cos\beta}$
 C. $\frac{\sqrt{1-\cos^2\beta}}{\cos^2\beta}$
 D. $-\frac{\sqrt{1-\cos^2\beta}}{\cos\beta}$
 E. $-\frac{\sqrt{\cos^2\beta}}{1+\cos^2\beta}$

10. The displacement of an object suspended by a spring is modeled by the function: Displacement = $12\sin 4\pi\theta$. Find the amplitude of the object.

- A. -48π
 B. 24
 C. 6
 D. 3π
 E. 12

$$\frac{\sin B}{\cos B} = \tan B$$

$$\sin^2 B + \cos^2 B = 1$$

$$\frac{-\sqrt{1-\cos^2 B}}{\cos B} = \tan B$$

$$\sin^2 B = 1 - \cos^2 B$$

$$\sin B = \pm\sqrt{1-\cos^2 B}$$

QUAD III, so

$$\sin B = -\sqrt{1-\cos^2 B}$$