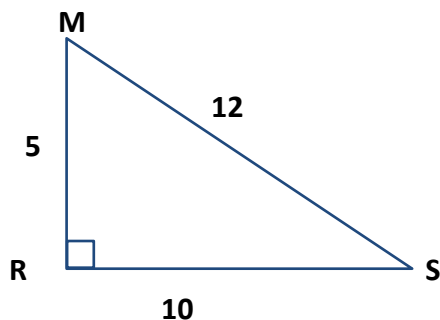
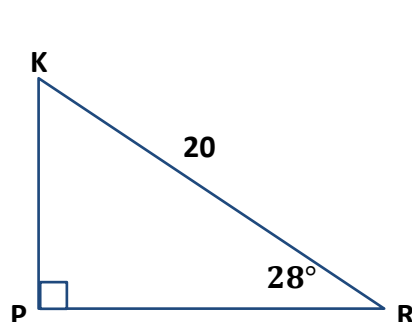


Trigonometric Ratios Exit Quiz

1. Find $\sin \angle M$, $\cos \angle M$



2. Use trigonometric ratios and Pythagorean Theorem to find the values of missing sides and angles.



$$\overline{KR} = 20$$

$$\angle R = 28^\circ$$

$$\overline{PK} = ?$$

$$\angle K = ?$$

$$\overline{PR} = ?$$

3. Use your calculator to calculate the following.

a. $\sin 30^\circ =$

b. $\cos 45^\circ =$

c. $\sin \angle B = 0,1908$

d. $\tan \angle B = 2,1445$

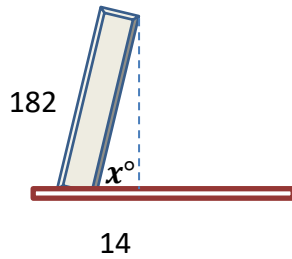
4. Find the value of θ that makes each statement true.

a. $\sin \theta = \cos(3\theta + 50^\circ)$

b. $\cos \theta = \sin(4\theta - 40^\circ)$

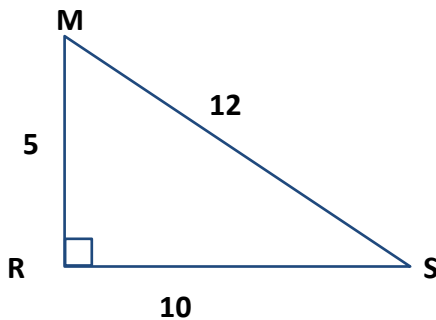
Trigonometric Ratios Exit Quiz

5. A rock dropped from the top of the Leaning Tower of Pisa falls to a point 14 feet from its base. If the tower is 182 feet tall, at what angle does it lean at the ground?



Trigonometric Ratios Exit Quiz

ANSWERS

1. Find $\sin \angle M$, $\cos \angle M$ 

$$\sin \angle M = \frac{\overline{RS}}{\overline{MS}}$$

$$\sin \angle M = \frac{10}{12}$$

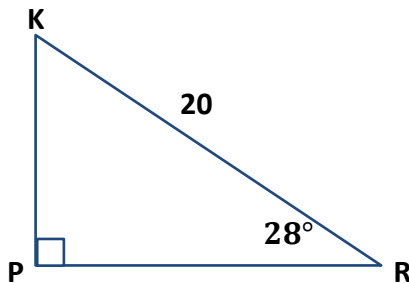
$$\sin \angle M \approx 0,83$$

$$\cos \angle M = \frac{\overline{MR}}{\overline{MS}}$$

$$\cos \angle M = \frac{5}{12}$$

$$\cos \angle M \approx 0,42$$

2. Use trigonometric ratios and Pythagorean Theorem to find the values of missing sides and angles.



$$\overline{KR} = 20 \quad \angle R = 28^\circ$$

$$\overline{PK} = ? \quad \angle K = ?$$

$$\overline{PR} = ?$$

$$\sin \angle R = \frac{\overline{PK}}{\overline{KR}}$$

$$\sin 28^\circ = \frac{\overline{PK}}{20}$$

$$\overline{PK} = 20 * \sin 28^\circ$$

$$\overline{PK} = 20 * 0,4695$$

$$\overline{PK} = 9,39$$

$$\overline{KR}^2 = \overline{PK}^2 + \overline{PR}^2$$

$$\overline{PR}^2 = \overline{KR}^2 - \overline{PK}^2$$

$$\overline{PR}^2 = 20^2 - 9,39^2$$

$$\overline{PR}^2 = 400 - 88,18$$

$$\overline{PR} = \sqrt{311,82}$$

$$\overline{PR} = 17,65$$

$$\angle K = 90^\circ - 28^\circ$$

$$\angle K = 62^\circ$$

3. Use your calculator to calculate the following.

a. $\sin 30^\circ =$ $\sin 30^\circ = 0,50$

b. $\cos 45^\circ =$ $\cos 45^\circ = 0,70$

c. $\sin \angle B = 0,1908$ $\angle B = 11^\circ$

d. $\tan \angle B = 2,1445$ $\angle B = 65^\circ$

4. Find the value of θ that makes each statement true.

a. $\sin \theta = \cos(3\theta + 50^\circ)$

$$\sin \theta = \cos(3\theta + 50^\circ)$$

$$\cos(90^\circ - \theta) = \cos(3\theta + 50^\circ)$$

$$90^\circ - \theta = 3\theta + 50^\circ$$

$$4\theta = 40^\circ$$

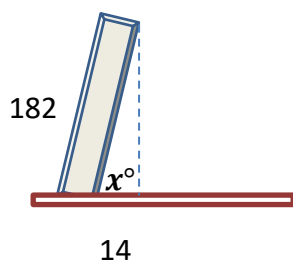
$$\theta = 10^\circ$$

Trigonometric Ratios Exit Quiz

b. $\cos \theta = \sin(4\theta - 40^\circ)$

$$\begin{aligned}\cos \theta &= \sin(4\theta - 40^\circ) \\ \sin(90^\circ - \theta) &= \sin(4\theta - 40^\circ) \\ 90^\circ - \theta &= 4\theta - 40^\circ \\ 5\theta &= 130^\circ \\ \theta &= 26^\circ\end{aligned}$$

5. A rock dropped from the top of the Leaning Tower of Pisa falls to a point 14 feet from its base. If the tower is 182 feet tall, at what angle does it lean at the ground?



$$\begin{aligned}\cos x^\circ &= \frac{14 \text{ feet}}{182 \text{ feet}} \\ \cos x^\circ &= 0,076 \\ x^\circ &\approx 85^\circ\end{aligned}$$