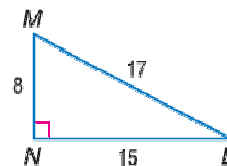


Lesson 11-4

Example 1

Find $\sin L$, $\cos L$ and $\tan L$.



Solution

$$\sin L = \frac{\text{length of side opposite } \angle L}{\text{length of hypotenuse}} = \frac{8}{17}$$

$$\cos L = \frac{\text{length of side adjacent to } \angle L}{\text{length of hypotenuse}} = \frac{15}{17}$$

$$\tan L = \frac{\text{length of side opposite } \angle L}{\text{length of side adjacent to } \angle L} = \frac{8}{15}$$

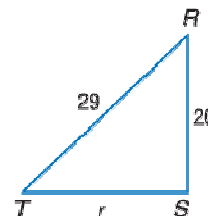
Example 2

In right triangle RST , if $\sin T = \frac{20}{29}$, find $\cos T$ and $\tan T$.

Solution

Make a diagram of triangle RST .

$$\sin T = \frac{\text{length of side opposite } \angle T}{\text{length of hypotenuse}} = \frac{20}{29}$$



Find the length of q , the side adjacent to $\angle T$.

$$29^2 = r^2 + 20^2 \quad \text{Use the Pythagorean Theorem.}$$

$$841 = r^2 + 400$$

$$441 = r^2 \quad \text{Subtract 400 from each side.}$$

$$\sqrt{441} = \sqrt{r^2}$$

$$\pm 21 = r \quad \text{The length of } q \text{ cannot be } -21.$$

So the length of the side adjacent to $\angle T$ is 21. Therefore,

$$\cos T = \frac{\text{length of side adjacent to } \angle T}{\text{length of hypotenuse}} = \frac{21}{29}$$

$$\tan T = \frac{\text{length of side opposite } \angle T}{\text{length of side adjacent to } \angle T} = \frac{20}{21}$$

Example 3

CALCULATOR Use a calculator to find $\sin 42^\circ$, $\cos 42^\circ$, and $\tan 42^\circ$ to four decimal places.

Solution

Use the key sequence required by your calculator. Be sure the calculator is set in degree mode.

$$\sin 42^\circ \approx 0.6691 \quad \cos 42^\circ \approx 0.7431 \quad \tan 42^\circ \approx 0.9004$$