SPECIAL RIGHT TRIANGLES

RIGHT TRIANGLES

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TOPIC OUTLINE

The Unit Circle

45-45-90 Triangle

30-60-90 Triangle

UNIT CIRCLE

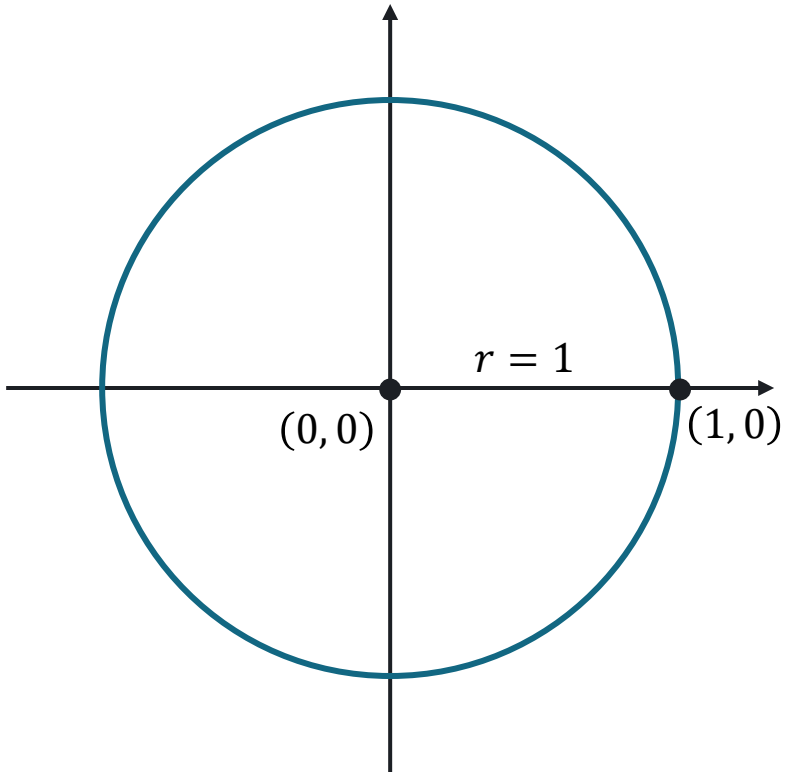
UNIT CIRCLE

A **unit circle** is a circle with radius **1 unit**, centered at the origin of the xy-plane.

Equation

$$x^2 + y^2 = 1$$

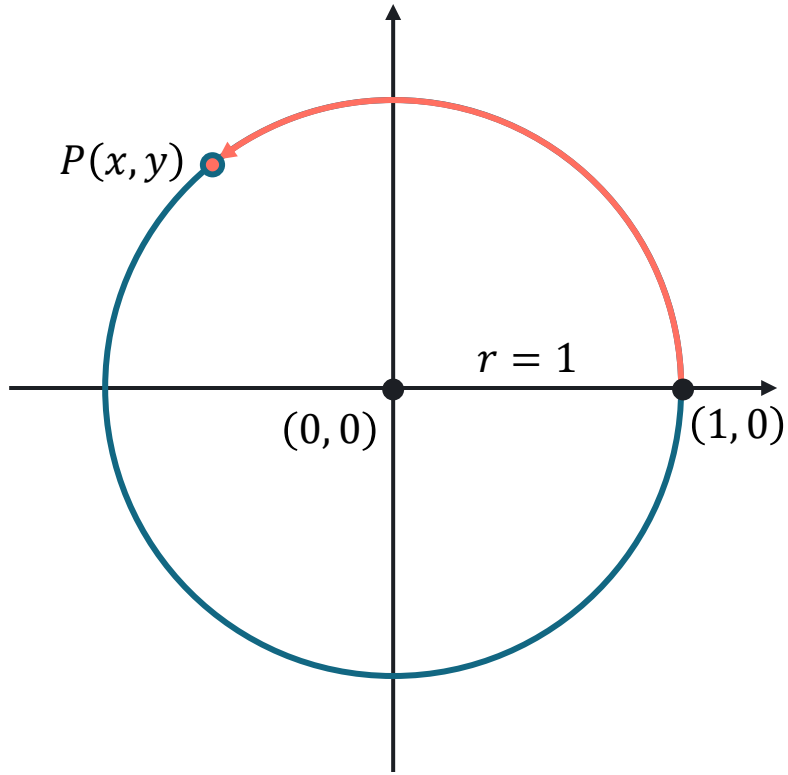
Unit Circle



TERMINAL POINTS

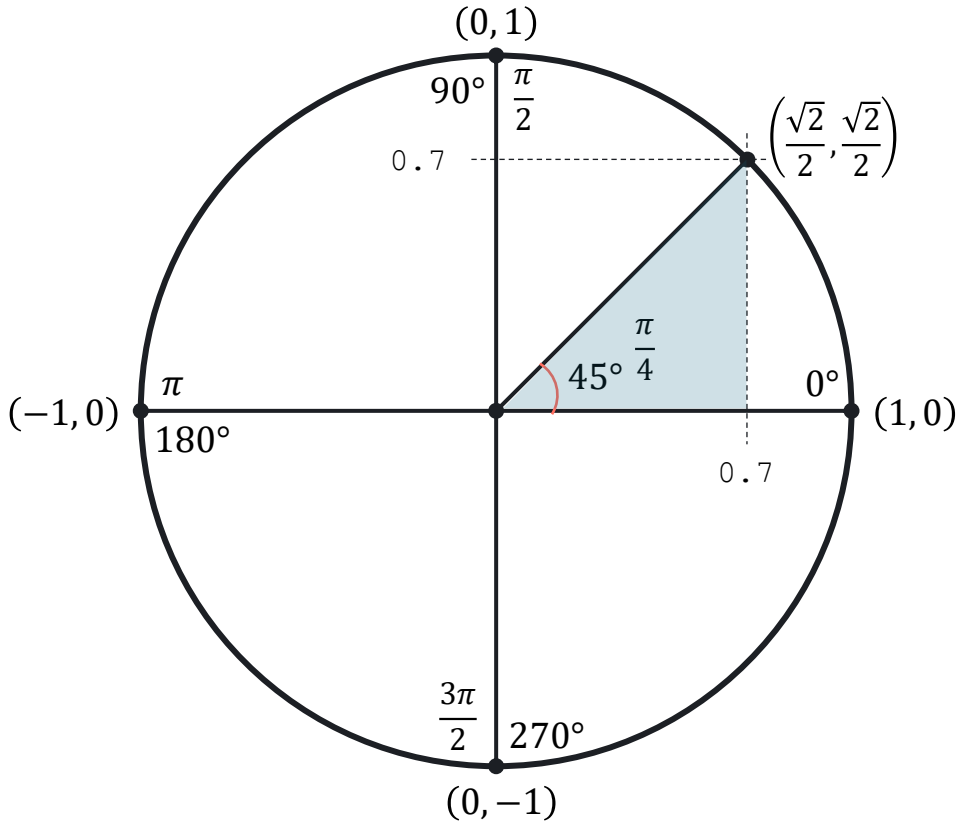
The **terminal point** is a point on the unit circle that corresponds to a given **angle** measured from the positive x-axis.

Terminal Point on the Unit Circle

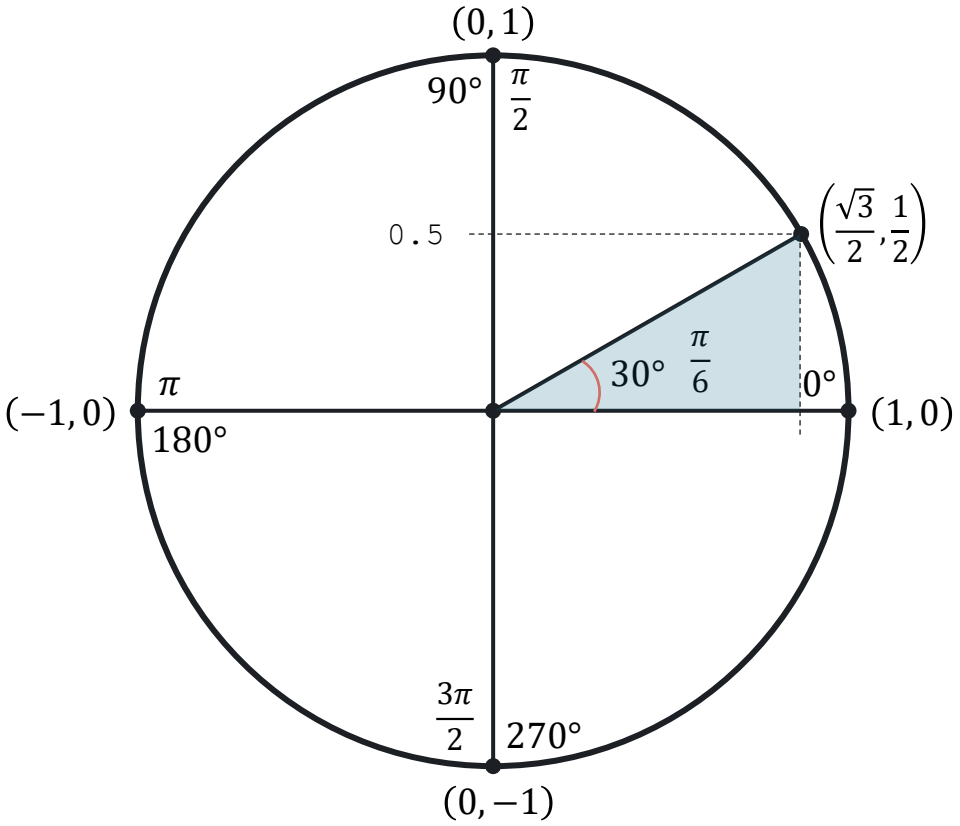


45° ANGLE

Trigonometric function values for 45°

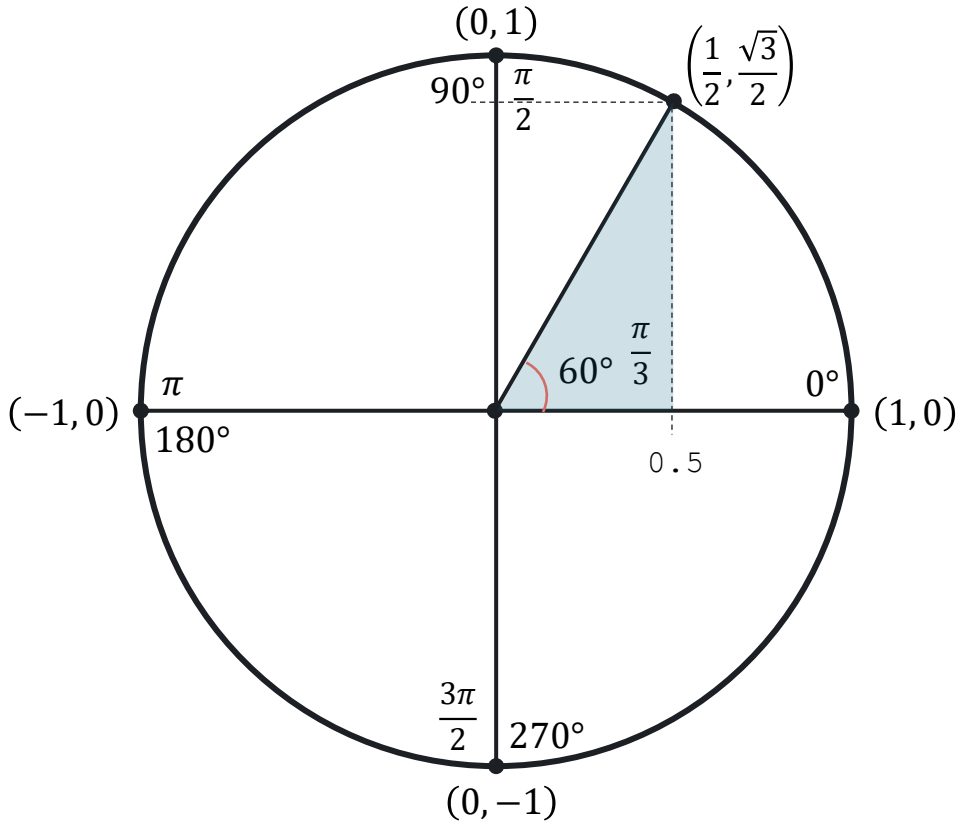


30° ANGLE



Trigonometric function values for 30°

60° ANGLE



Trigonometric function values for 60°

EXERCISE

Evaluate the expression without using a calculator.

$a.\ \sin 30° \csc 30°$

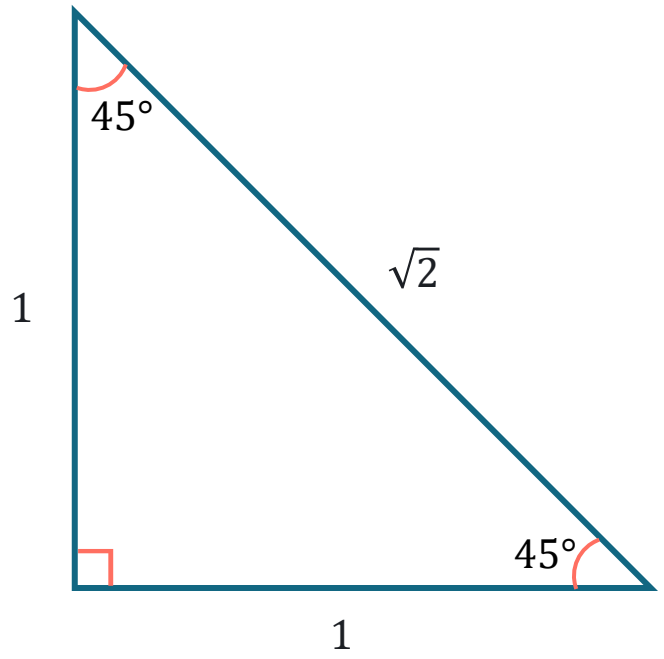
$b.\ \sin\frac{\pi}{6} + \cos\frac{\pi}{6}$

$c.\ \sin 30° \cos 60° + \sin 60° \cos 30°$

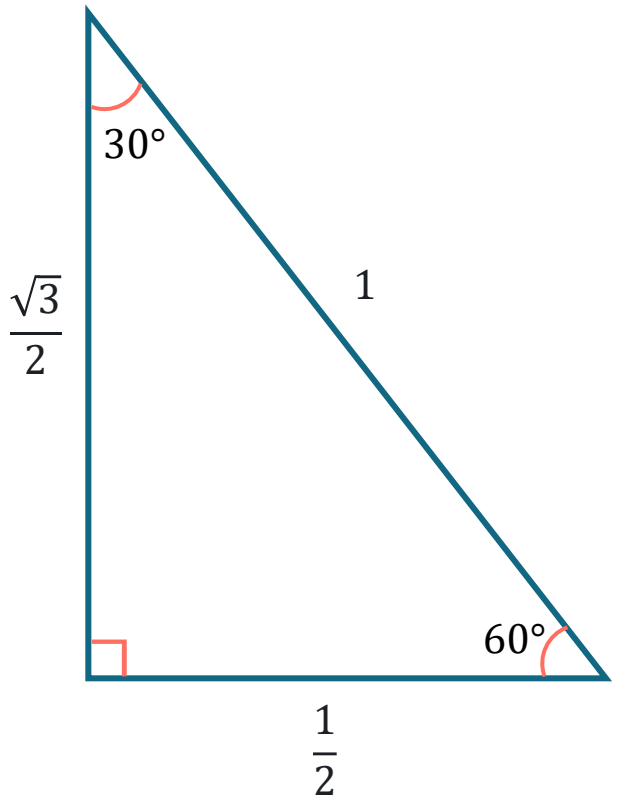
Solution

SPECIAL RIGHT TRIANGLES

45-45-90 TRIANGLE

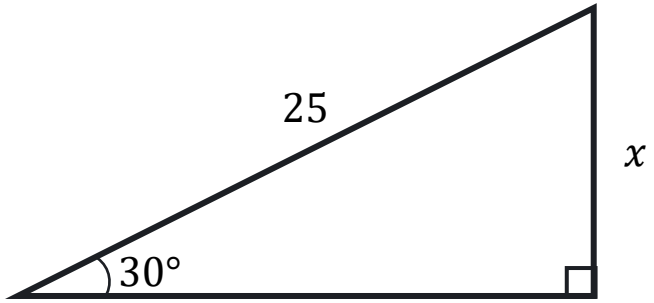


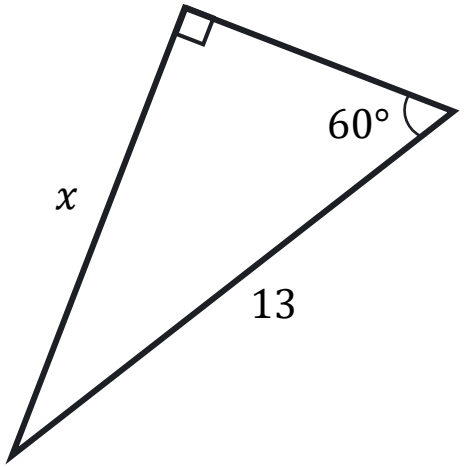
30-60-90 TRIANGLE

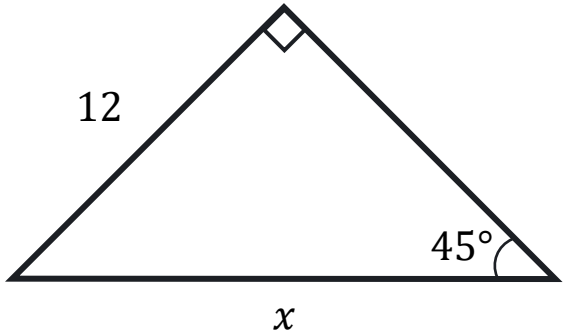


EXERCISE

Find the side labeled x.



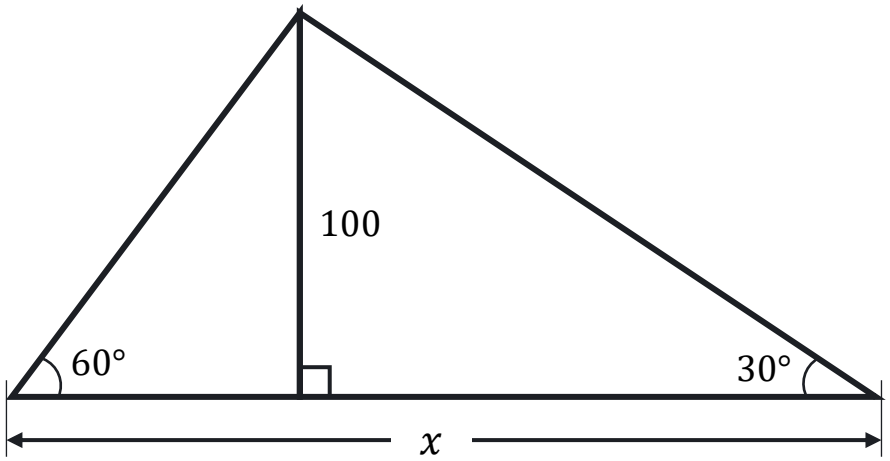




Solution

EXERCISE

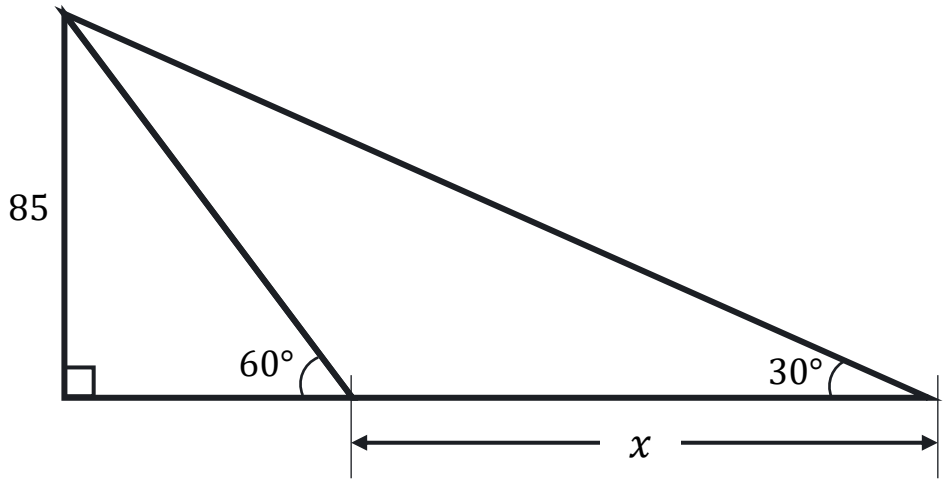
Find x correct to one decimal place.



Solution

EXERCISE

Find x correct to one decimal place.



Solution

SEATWORK