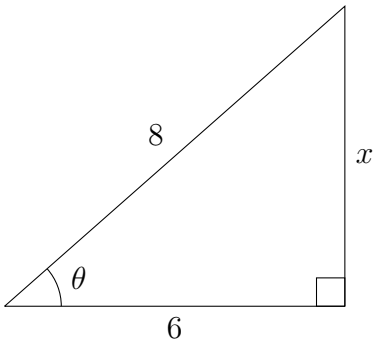
Trig Exact from Exact

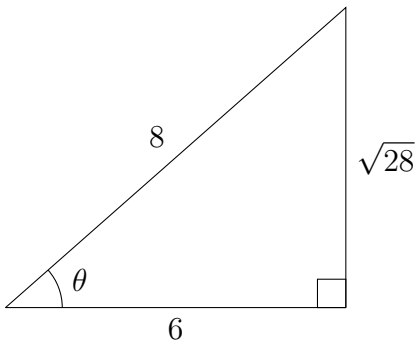
Example Problems

EXAMPLE 1: Given that $\cos(\theta) = \frac{5}{8}$, find the exact value of $\sin(\theta)$.
SOLUTION: Since we know that cos is the ratio between the adjacent and hypotenuse, we can draw a triangle that represents the question.



Now that this triangle has been drawn, we can see that despite not knowing the size of the angle θ we can find the length of the missing side using Pythagoras' theorem,

$$\begin{aligned} x^2 &= 8^2 - 6^2, \\ x^2 &= 28, \\ x &= \sqrt{28}. \end{aligned}$$



Now we have the length of both the opposite side and hypotenuse, we can calculate the exact value of $\sin(\theta)$,

$$\sin(\theta) = \frac{\sqrt{28}}{8}.$$

Question Bank

1.

Answers

1.