

Precalculus

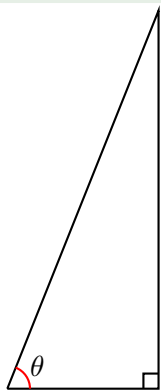
Compute the trigonometric functions in a right angle triangle, part 2

Todor Milev

2019

Example

If $\cos \theta = \frac{2}{5}$ and $0 < \theta < \frac{\pi}{2}$, find the other five trigonometric functions of θ .



$$\sin \theta =$$

$$\tan \theta =$$

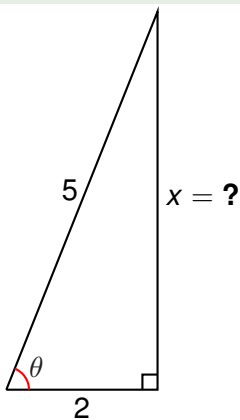
$$\csc \theta =$$

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- Label the hypotenuse with length 5 and the adjacent side with length 2.

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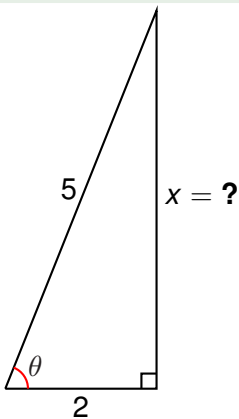
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- Pythagorean theorem: $x^2 + 2^2 = 5^2$.

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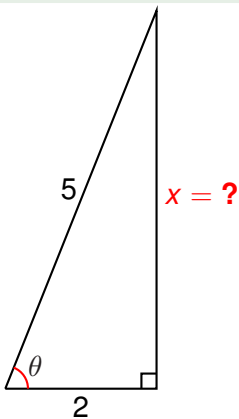
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- Label the hypotenuse with length 5 and the adjacent side with length 2.
- Pythagorean theorem: $x^2 + 2^2 = 5^2$.
- Therefore $x^2 = ?$, so $x = ?$.

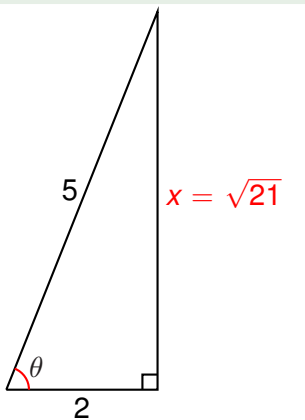
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- Label the hypotenuse with length 5 and the adjacent side with length 2.
- Pythagorean theorem: $x^2 + 2^2 = 5^2$.
- Therefore $x^2 = 21$, so $x = \sqrt{21}$.

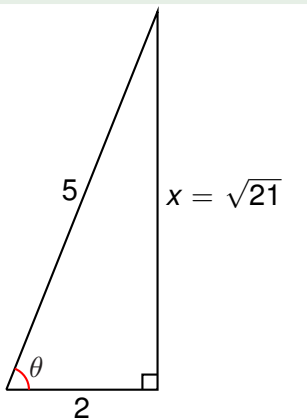
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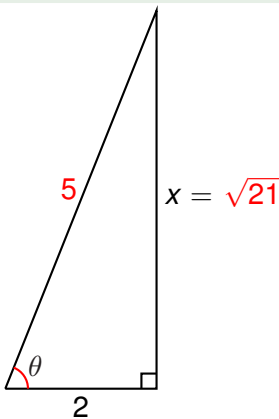
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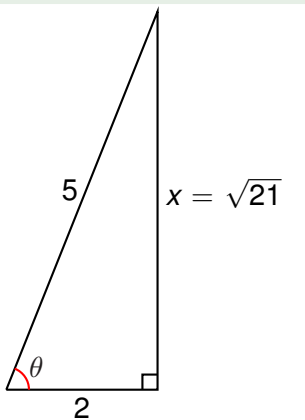
$$\sin \theta = \frac{\sqrt{21}}{5} \quad \tan \theta =$$

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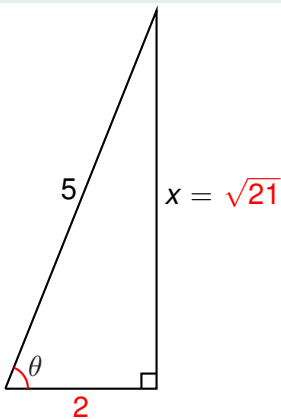
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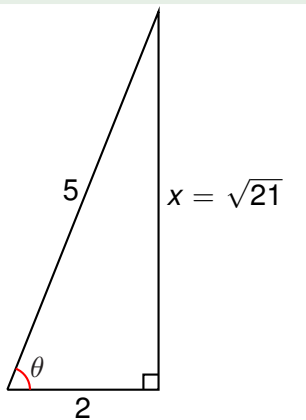
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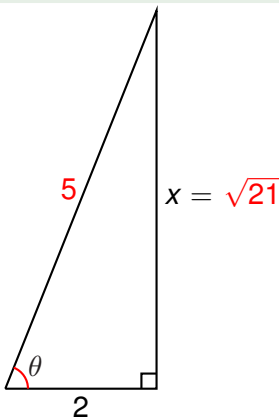
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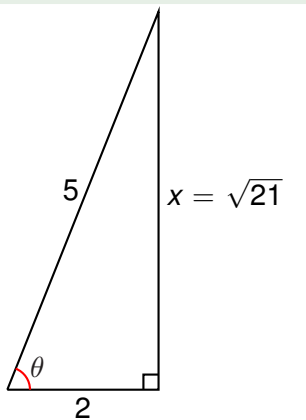
$$\sin \theta = \frac{\sqrt{21}}{5} \quad \tan \theta = \frac{\sqrt{21}}{2}$$

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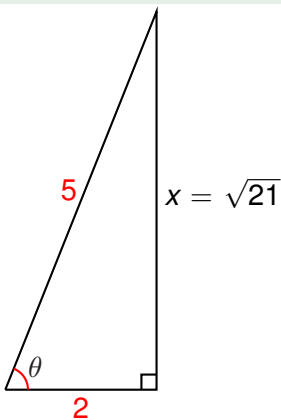
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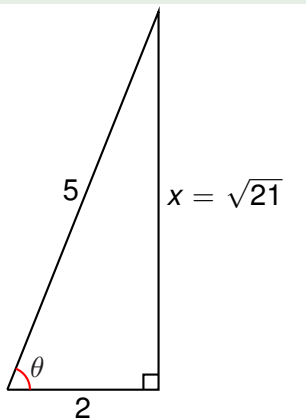
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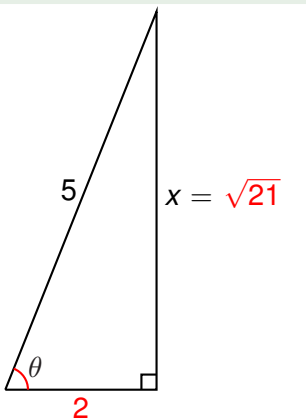
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$$\cot \theta = \frac{2}{\sqrt{21}}$$