

A. Warm-Up
Simplify the radicals.

$\sqrt{32} = \sqrt{16 \cdot 2} = \frac{\sqrt{16} \sqrt{2}}{4\sqrt{2}}$ $\sqrt{5 \cdot 15} = \sqrt{75} = \sqrt{25 \cdot 3} = 5\sqrt{3}$ $\sqrt{6 \cdot 12} = \sqrt{72} = \sqrt{36 \cdot 2} = 6\sqrt{2}$

Solve for x using the Pythagorean Theorem ($a^2 + b^2 = c^2$)

$3^2 + x^2 = 5^2$
 $9 + x^2 = 25$
 $x^2 = 16$
 $x = 4$

$(\sqrt{3})^2 + (\sqrt{6})^2 = x^2$
 $3 + 6 = x^2$
 $9 = x^2$
 $x = 3$

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B. Review
SOH-CAH-TOA

Find the Sin A, Cos A, and Tan A by forming a trig ratio

1.

$\sin A = \frac{6}{12}$
 $\cos A = \frac{9}{12}$
 $\tan A = \frac{6}{9}$

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C. What kind of triangle is it?

$4^2 + 7^2 \square 8^2$
 $16 + 49 \square 64$
 $65 > 64$

acute

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What kind of triangle is it?

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Quick Quiz!!!

#10 #12

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p498 #7

$\sin D = \frac{13\sqrt{3}}{26}$ $\cos D = \frac{13}{26}$
 $\sin E = \frac{13}{26}$ $\cos E = \frac{13\sqrt{3}}{26}$

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New Notes

Solving for Side Lengths

9.4 & 9.5

2/27

Calc

Finding Trig Ratios using a

Tan 48° = 1.11 Sin 29° = .49 Cos 87° = .05

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Use can use Trigonometric Ratios to solve for side lengths in Right Triangles.

Option 1

From A I have Opposite and Adjacent

Step 1 choose trig function

$$\tan 19 = \frac{22}{x}$$

Step 2 solve

$$.3443 = \frac{22}{x}$$

$$.3443x = 22$$

$$x = 7.58$$

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Option 2

From B I have Opposite and Adjacent

Steps

1 choose trig function

$$\tan B = \frac{22}{x}$$

$$\tan 71 = \frac{22}{x}$$

2 Calculate tan 71

$$x \cdot 2.904 = \frac{22}{1}$$

$$\frac{2.904x = 22}{2.904 \quad 2.904}$$

$$x = 7.58$$

∠B = 71°

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Steps for Solving for a Side Length:

1. Pick the Angle
2. Label the sides for the triangle
Opposite, Adjacent, Hypotenuse
3. Write the equation using trig ratios
4. Solve for x
When x is in the numerator:
When x is in the denominator:

Mar 28-8:31 AM

How can I solve for x? HINT x is a side length!!!

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Step 1: $\sin 79 = \frac{22}{x}$

Step 2: $\frac{x}{1} \cdot .98 = \frac{22}{x} \cdot \frac{x}{1}$

Step 3: $\frac{.98x = 22}{.98 \quad .98}$

x = 22.45

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Solve for x

Step 1: $\cos 57 = \frac{x}{17}$

Step 2: $\frac{17}{1} \cdot .5446 = \frac{x}{17} \cdot \frac{17}{1}$

Step 3: 9.23 = x

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Solve for x

Step 1: $\cos 19 = \frac{x}{14}$

Step 2: $\frac{14}{1} \cdot .9455 = \frac{x}{14} \cdot \frac{14}{1}$

Step 3: x = 13.24

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Solve for x

$\sin 74 = \frac{x}{6}$
 $\frac{6}{1} \cdot .9613 = \frac{x}{6} \cdot \frac{6}{1}$
 $x = 5.77$

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Try on your own Example 8

First

- Choose which variable to solve first
- Choose trig function w/ x (not y)

$\tan 33 = \frac{x}{14}$
 $\frac{14}{1} \cdot .6494 = \frac{x}{14} \cdot \frac{14}{1}$
 $x = 9.09$

2nd Choose trig OR $a^2 + b^2 = c^2$

$(9.09)^2 + 14^2 = y^2$
 $82.64 + 196 = y^2$
 $\sqrt{278.64} = y$
 $y = 16.69$

Example 8:

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<p>Solve for x.</p>
<p>Solve for x.</p>
<p>Solve for x.</p>

Feb 20-11:04 AM