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# Quiz #1

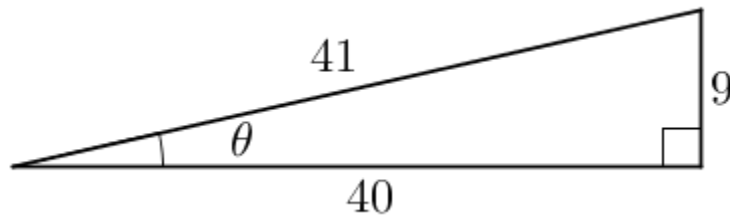
Attempts

Attempt 1: 90% (9/10 points), Sep 07 at 1:47pm MST

Questions to show:

All (10) ▼

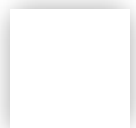
QUESTION 1 · 1/1 POINTS

Given the triangle below, find  $\sin(\theta)$ . Give an exact answer.

That is correct!

$$\sin(\theta) = \frac{9}{41}$$

## Answer Explanation



Correct answers:

$$\sin(\theta) = \frac{9}{41}$$

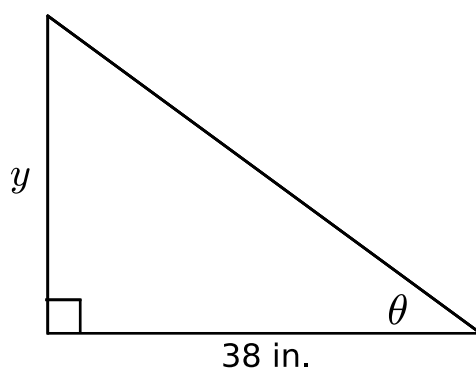
Remember that  $\sin(\theta)$  equals the opposite side divided by the hypotenuse. In this case, the opposite side has length 9, and the hypotenuse has length 41, so we find that

$$\sin(\theta) = \frac{\text{Opposite}}{\text{Hypotenuse}} = \frac{9}{41}$$

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QUESTION 2 · 1/1 POINTS



The figure above shows a right triangle with dimensions in inches. If  $\theta = 35^\circ$ , what is the length of  $y$  to the nearest inch? (Do not include units in your answer)

That is correct!

27

Answer Explanation



Correct answers:

27

With respect to  $\theta$ , the length of the adjacent side is given and the length of the opposite side needs to be found. The tangent of  $\theta$  is equal to the ratio of the opposite side to the adjacent side. In this case,

$$\tan \theta = \tan 35^\circ = \frac{y}{38}.$$

Solving this equation for  $y$  shows that

$$y = 38 \tan 35^\circ \approx 27 \text{ inches.}$$

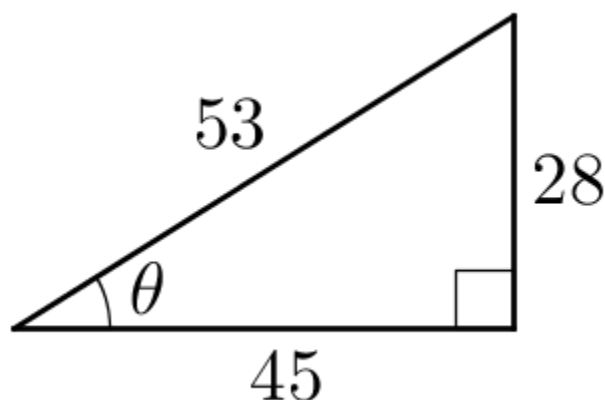
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QUESTION 3 · 1/1 POINTS

Given the triangle below, find  $\cos(\theta)$ .

Enter the answer as a fraction.



That is correct!



$$\cos(\theta) = \frac{45}{53}$$

## Answer Explanation

Correct answers:

$$\cos(\theta) = \frac{45}{53}$$

Remember that  $\cos(\theta)$  equals the adjacent side divided by the hypotenuse. In this case, the adjacent side has length 45, and the hypotenuse has length 53, so we find that

$$\cos(\theta) = \frac{\text{Adjacent}}{\text{Hypotenuse}} = \frac{45}{53}$$

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### QUESTION 4 · 1/1 POINTS

The measure of one angle of a right triangle is  $18^\circ$  more than the measure of the smallest angle. Find the measure of the smallest angle.

That is correct!

$36^\circ$

## Answer Explanation



Correct answers:

$36^\circ$

Step 1. Read the problem.

Step 2. Identify what you are looking for.

the measure of the smallest angle

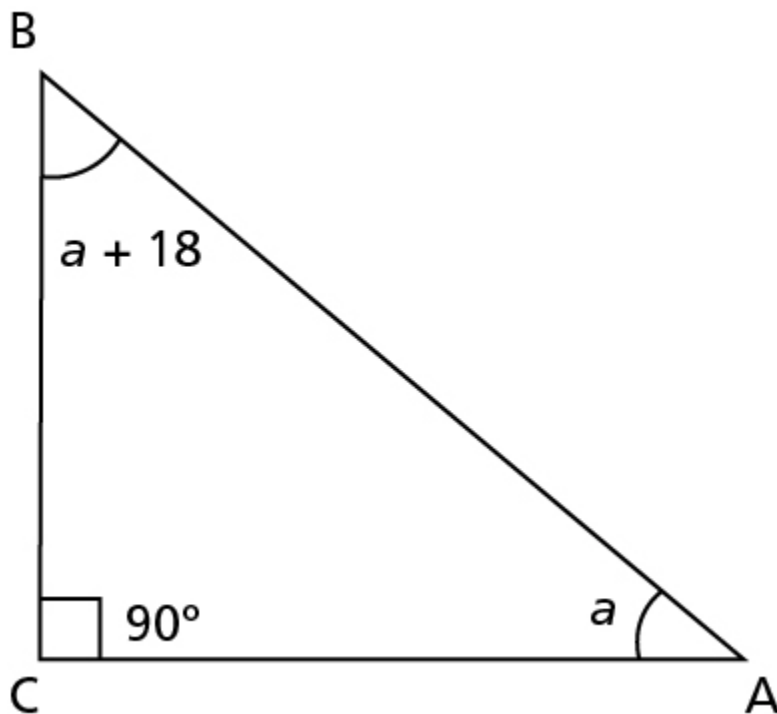
Step 3. Name. Choose a variable to represent it.

Now draw the figure, and label it with the given information.

let  $a$  = first angle

$a + 18$  = second angle

$90$  = third angle (the right angle)



Step 4. Translate. Write the appropriate formula, and substitute.

$$m\angle A + m\angle B + m\angle C = 180$$

$$a + (a + 18) + 90 = 180$$

$$2a + 108 = 180$$

$$2a = 72$$

$$a = 36 \text{ (first angle)}$$

Step 5. Solve the equation.

$$a + 18 \text{ (second angle)}$$

$$36 + 18$$

$$54$$

$$90 \text{ (third angle)}$$

Step 6. Check.

$$36 + 54 + 90 \stackrel{?}{=} 180$$

$$180 = 180 \checkmark$$

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Step 7. Answer the question.

QUESTION 5 · 0/1 POINTS

The smallest angle measures  $36^\circ$ .

Compute the following using a calculator:  $\sin\left(\frac{2\pi}{5}\right)$ . Round your answer to two decimal places.

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That's not right.

0.02

Answer Explanation



Correct answers:

0.95

Make sure you are in radians mode on your calculator, and then enter the following keystrokes:

$\text{SIN}(2 \times \pi \div 5)$  ENTER

and find that

$$\sin\left(\frac{2\pi}{5}\right) \approx 0.95$$

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QUESTION 6 · 1/1 POINTS

If angle  $A = 320^\circ$ , what is the radian measure of  $A$ ? Give your answer as an exact fraction in terms of  $\pi$ .

That is correct!

$$\frac{16\pi}{9}$$

## Answer Explanation

Correct answers:

$$\frac{16\pi}{9}$$

Remember that to convert from degrees to radians, we multiply by the unit factor  $\frac{\pi}{180}$  which cancels the degrees. Doing so, we find

$$320^\circ \cdot \frac{\pi}{180^\circ} = \frac{320\pi}{180} = \frac{16\pi}{9}$$

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## QUESTION 7 · 1/1 POINTS

The measures of two angles of a triangle are  $63^\circ$  and  $67^\circ$ . Find the measure of the third angle.

That is correct!

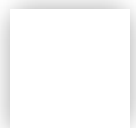
$50^\circ$

## Answer Explanation

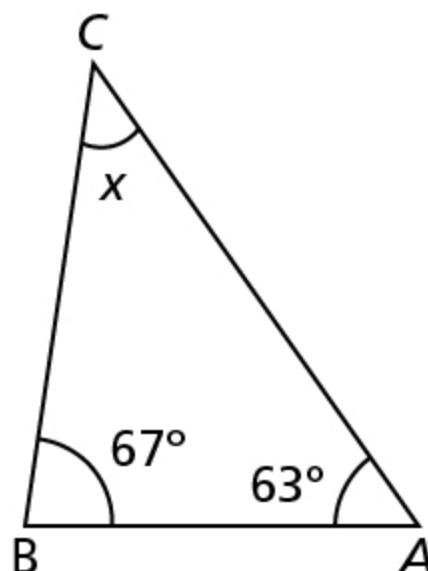
Correct answers:

$50^\circ$

Step 1. Read the problem. Draw the figure, and label it with the given information.







Step 2. Identify what you are looking for.

the measure of the third angle in a triangle

Step 3. Name. Choose a variable to represent it.

Let  $x$  = the measure of the angle.

Step 4. Translate. Write the appropriate formula, and substitute.

$$m\angle A + m\angle B + m\angle C = 180$$

Step 5. Solve the equation.

$$63 + 67 + x = 180$$

$$130 + x = 180$$

$$x = 50$$

Step 6. Check.

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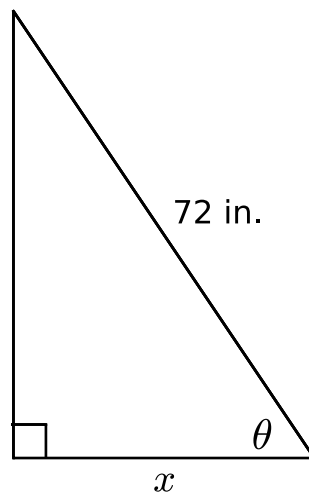
$$63 + 67 + 50 \stackrel{?}{=} 180$$

$$180 = 180 \checkmark$$

QUESTION 8 1/1 POINTS  
Step 7. Answer the question.

The measure of the third angle is 50 degrees.

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The figure above shows a right triangle with dimensions in inches. If  $\theta = 55^\circ$ , what is the length of  $x$  to the nearest inch? (Do not include units in your answer)

That is correct!

41

## Answer Explanation

Correct answers:

41

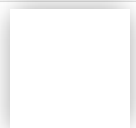
With respect to  $\theta$ , the length of the hypotenuse is given and the length of the adjacent side needs to be found. The cosine of  $\theta$  is equal to the ratio of the adjacent side to the hypotenuse. In this case,

$$\cos \theta = \cos 55^\circ = \frac{x}{72}.$$

Solving this equation for  $x$  shows that

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$$x = 72\cos 55^\circ \approx 41 \text{ inches.}$$



## QUESTION 9 · 1/1 POINTS

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Convert  $\frac{13\pi}{30}$  from radians to degrees.

That is correct!

78°

## Answer Explanation

Correct answers:

78°

To convert from radians to degrees, multiply the radian measure by  $\frac{180^\circ}{\pi}$ , and reduce.

$$\frac{13 \cancel{\pi}}{30} \cdot \frac{180^\circ}{\cancel{\pi}} = 78^\circ$$

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## QUESTION 10 · 1/1 POINTS

Compute the following using a calculator:  $\cos(238^\circ)$ . Round your answer to two decimal places.

That is correct!



−0.53

## Answer Explanation

Correct answers:

−0.53

Make sure you are in degrees mode on your calculator, and then enter the following keystrokes:

**COS(238) ENTER**

and find that

**$\cos(238^\circ) \approx -0.53$**

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