

What's Going On?

Checking In

Minds on

sin, cos or tan?

Action!

Solving for sides.

Consolidation

Side wars!

Learning Goal - I will use sin, cos and tan to solve for side lengths in right triangles.

Checking In

F.F.M.

Name: _____

Date: _____

Explain, in words, what the letters in **sohcahtoa** stand for and what it helps us remember.

Use full sentences, you don't need to write this question.

soh

cah

toa

$$\sin(\text{angle}) = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos(\text{angle}) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan(\text{angle}) = \frac{\text{opposite}}{\text{adjacent}}$$

sohcahtoa helps us remember what sin, cos and tan of an angle are.

sin of an angle is the length of the opposite side, divided by the length of the hypotenuse

cos of an angle is the length of the adjacent side, divided by the length of the hypotenuse

tan of an angle is the length of the opposite side, divided by the length of the adjacent side

It's amazing!

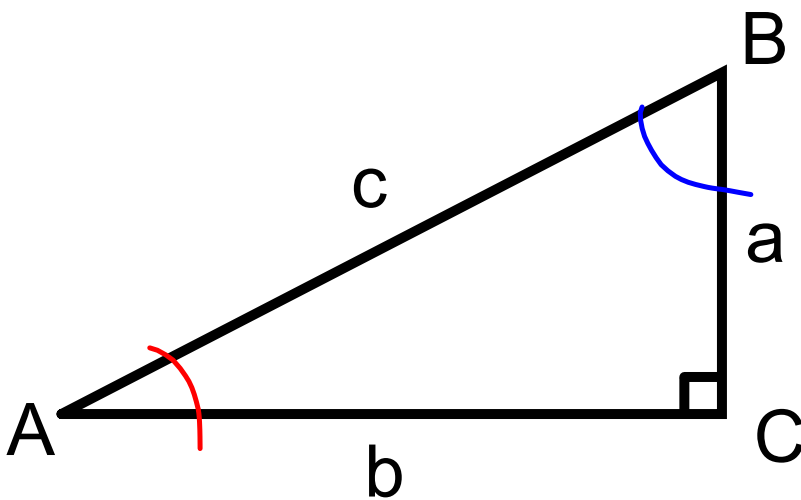
YES!!!!

sohcahtoa

ITi
LOVE
YOU

Minds on

The Ratios



$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

$$\sin B = \frac{b}{c} \quad \cos B = \frac{a}{c} \quad \tan B = \frac{b}{a}$$

Minds on

 
sin, cos or tan?

We can use sin, cos and tan to determine the lengths of sides in right triangles.

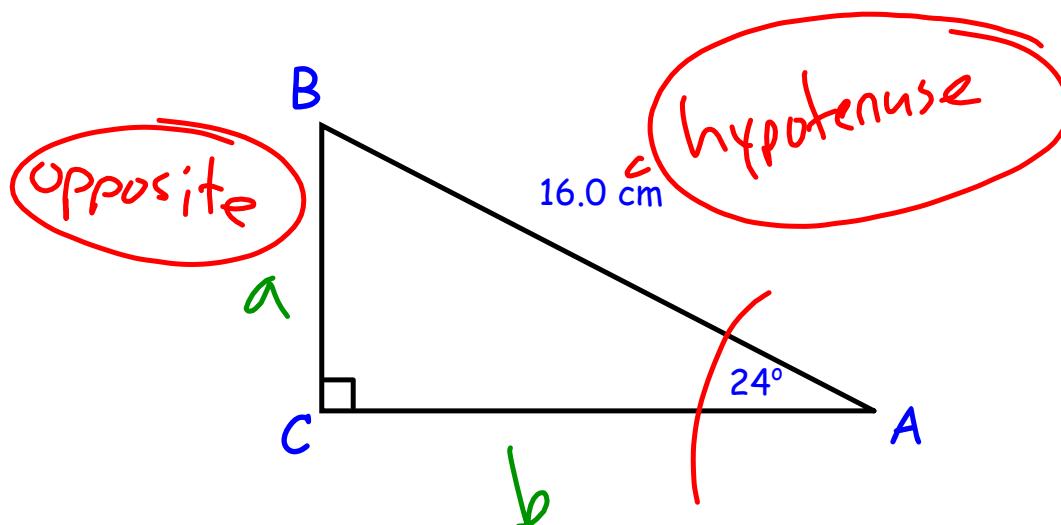
Before we can do anything else, we need to decide which one we are going to use!! (sin, cos or tan)

How can we do that?

Minds on


sin, cos or tan?

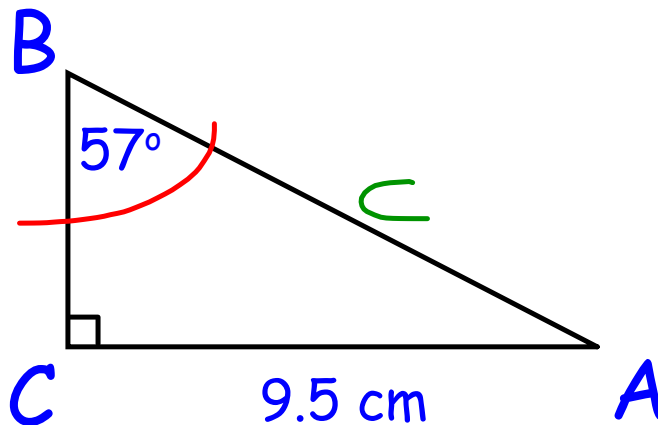
Determine the length of side a to one decimal place.



Minds on

sin, cos or tan?

Determine the length of side C

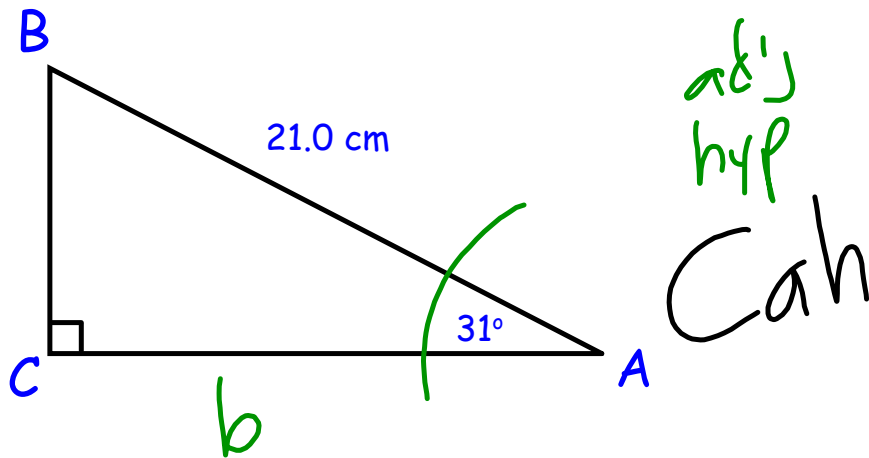


1. Identify the reference angle. *Angle B = 57°*
2. Determine our "sides of interest"
 - what side(s) we have (opposite, adjacent, hypotenuse) *dh*
 - what side we want (opposite, adjacent, hypotenuse)
3. Our sides of interest tell us which trig ratio to use.
 - opposite and hypotenuse → *sin*
 - adjacent and hypotenuse → *cos*
 - opposite and adjacent → *tan*

Minds on

sin, cos or tan?

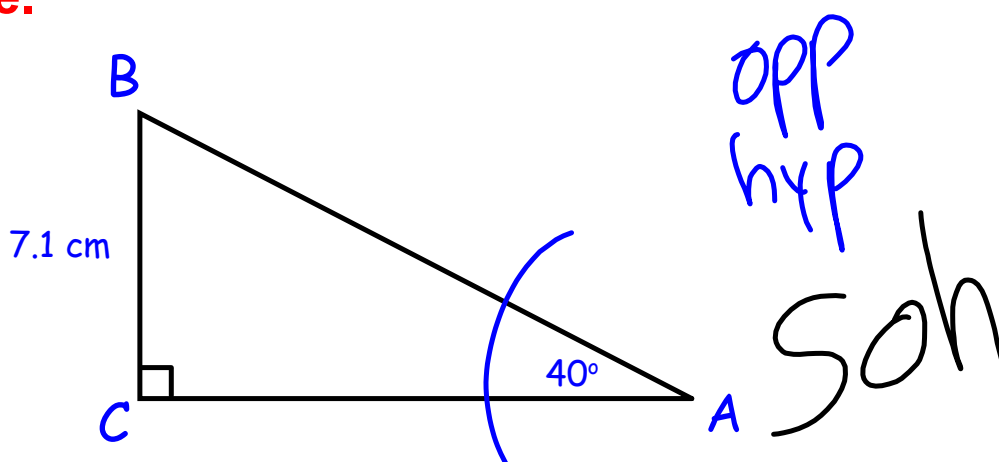
Determine the length of side b to one decimal place.



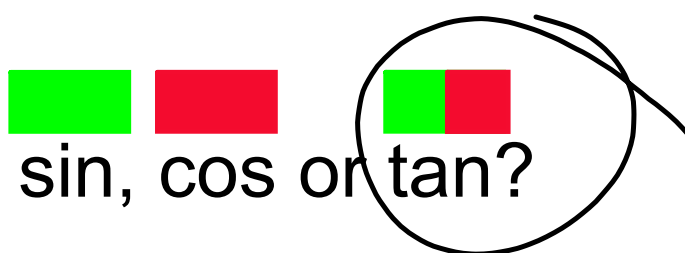
Minds on

sin, cos or tan?

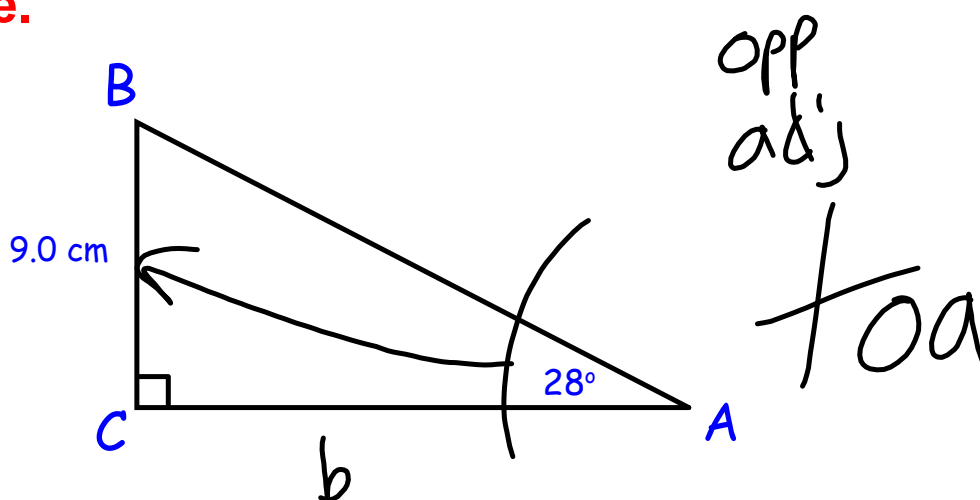
Determine the length of side c to one decimal place.



Minds on



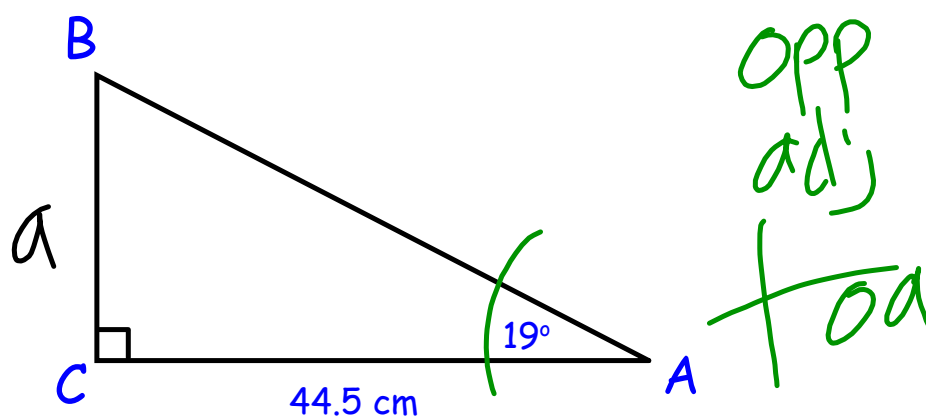
Determine the length of side b to one decimal place.






Minds on

sin, cos or tan?

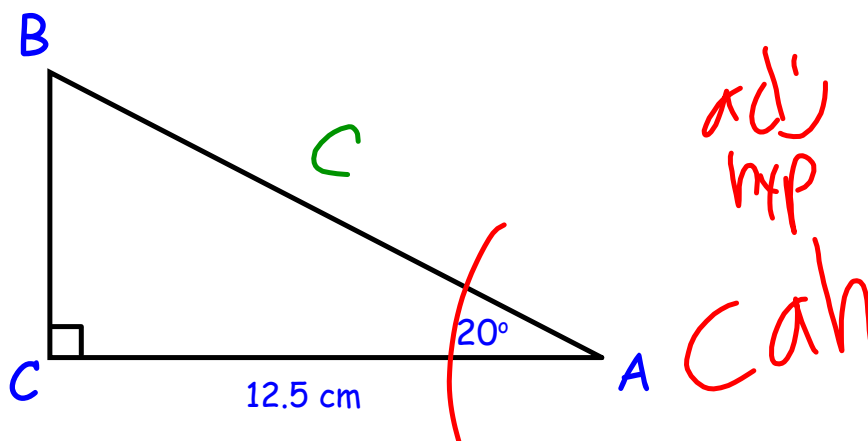
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Minds on

  
sin, cos or tan?

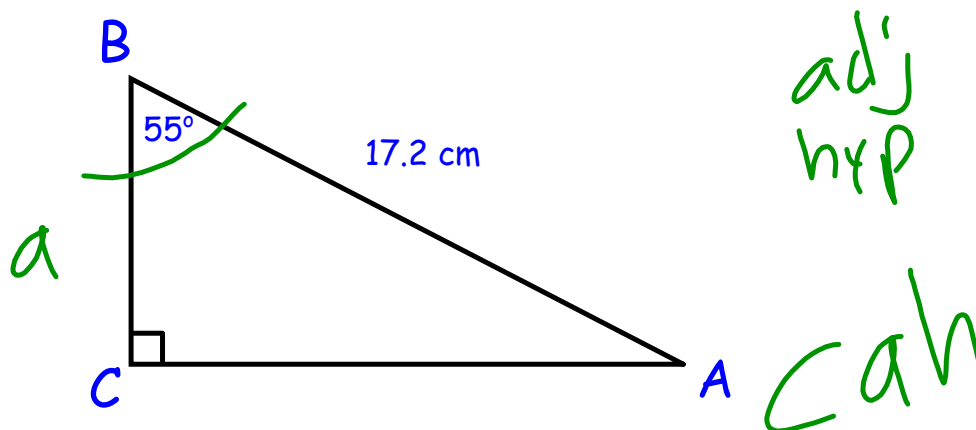
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Minds on


sin, cos or tan?

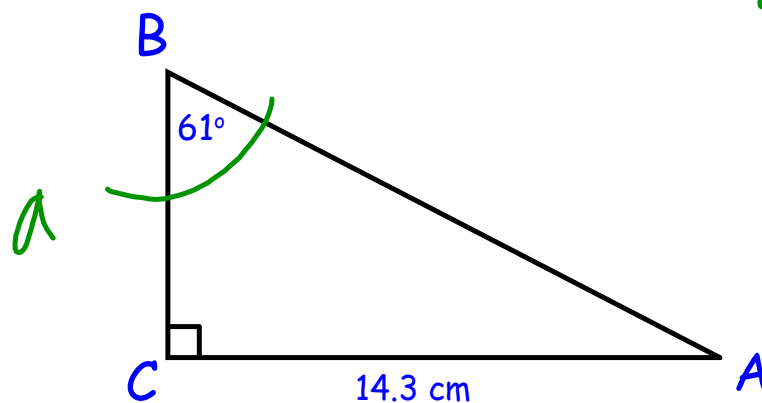
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Minds on


sin, cos or tan?

Determine the length of side a to one decimal place.



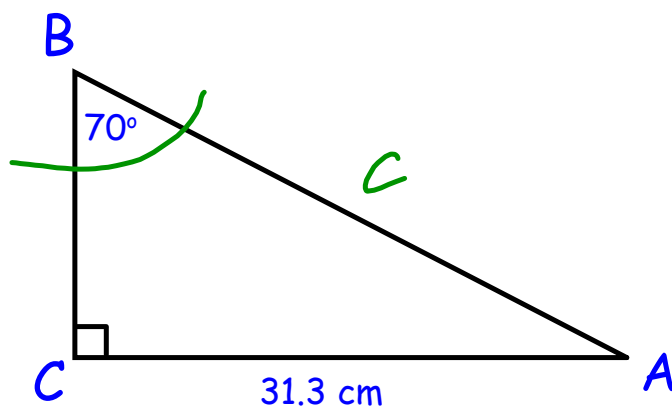
adj
opp

adj
toa

Minds on


sin, cos or tan?

Determine the length of side c to one decimal place.

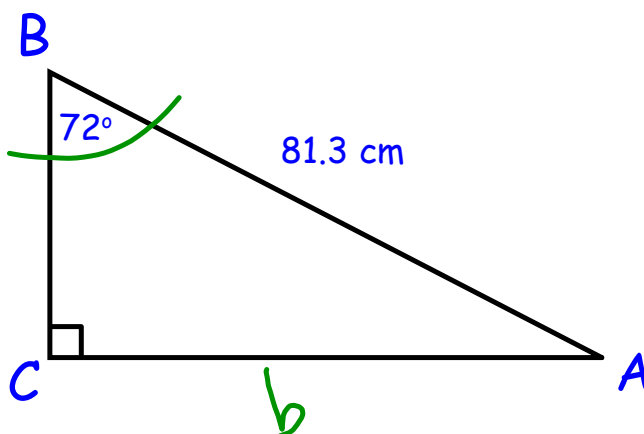


opp
hyp
soh

Minds on

 
sin, cos or tan?

Determine the length of side b to one decimal place.

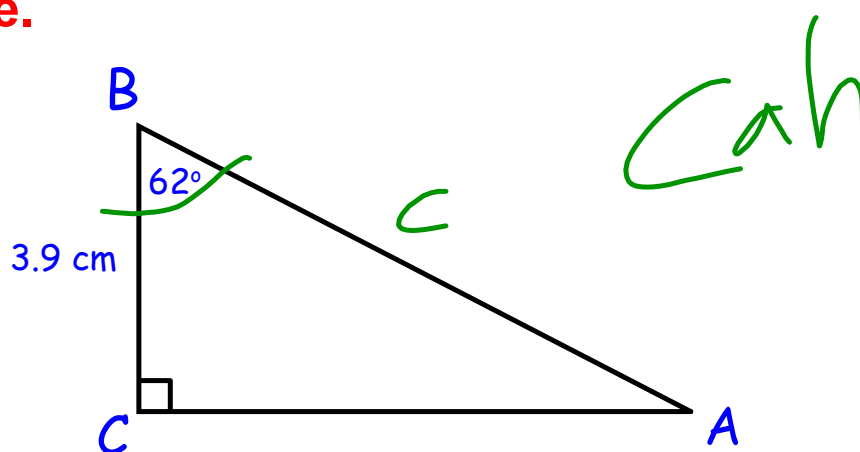


OPP
hyp
SOH


Minds on

sin, cos or tan?

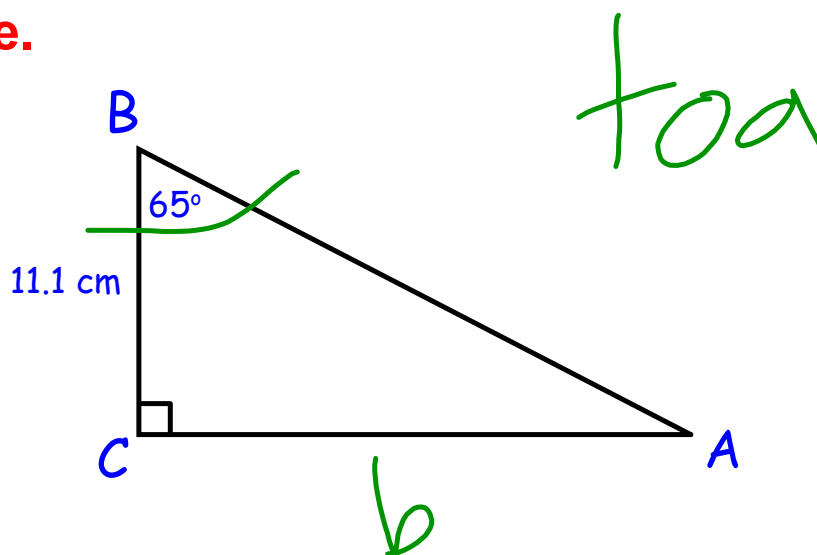
Determine the length of side c to one decimal place.



Minds on


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Determine the length of side b to one decimal place.



Action!

Solving for Sides

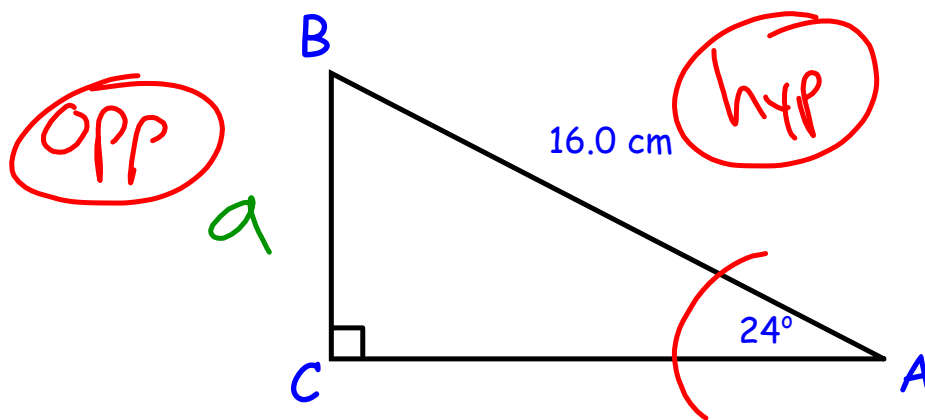
To solve for a side in a right triangle:

1. Decide if you are going to use sin, cos or tan.
2. Set up your trig ratio using sin, cos or tan.
3. Plug in your values.
4. Evaluate your trig ratio to 4 decimal places. *sin(32°) for example*
5. Cross multiply.

Action!

Solving for Sides

Determine the length of side a to one decimal place.



$$\rightarrow \sin(24^\circ) = \frac{a}{16.0}$$

$$\frac{0.4067}{1} = \frac{a}{16.0}$$

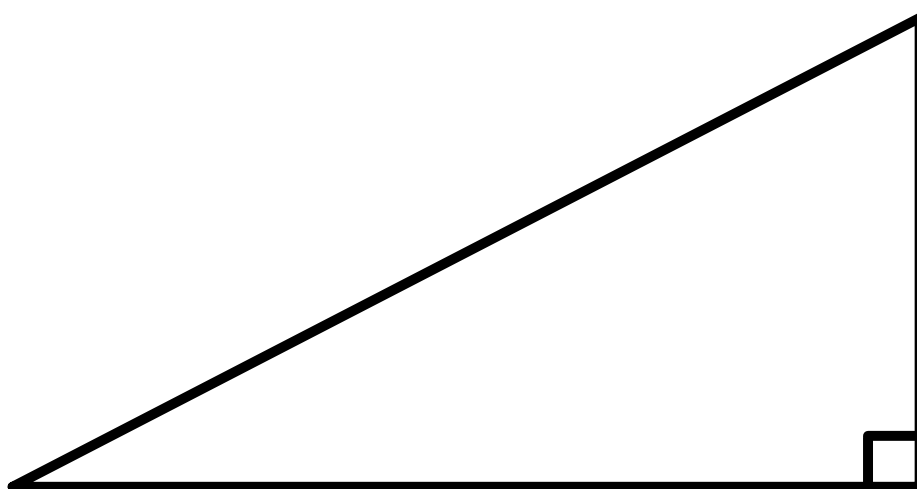
$$(0.4067)(16.0) = a$$

$$6.5072 = a$$

$$a = 6.5 \text{ cm}$$

Consolidation

Side Wars



Find the length of side ____.