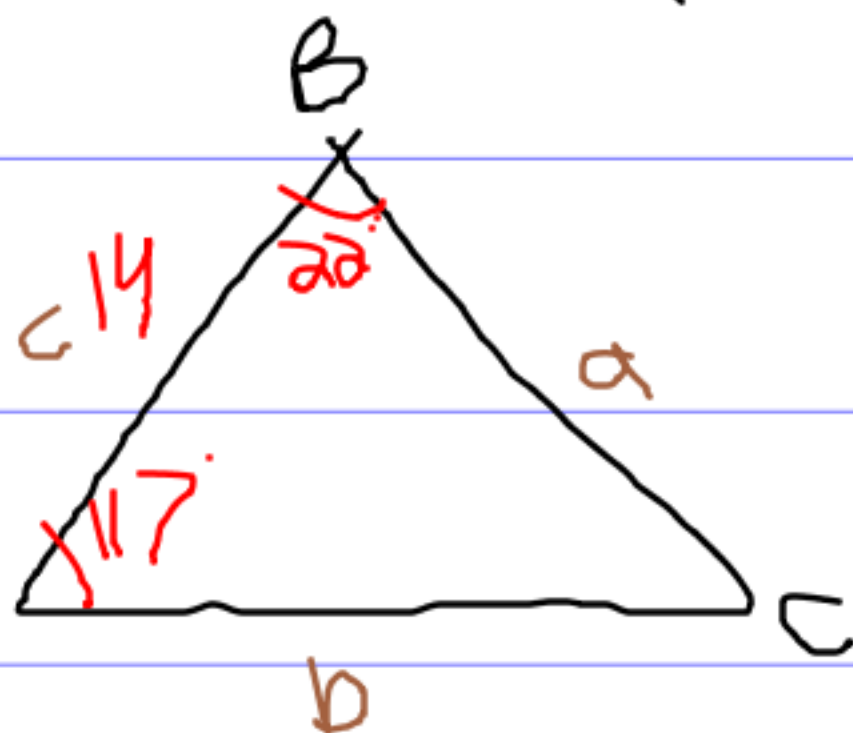


Solve each triangle. Round your answers to the nearest tenth.

22) In $\triangle TRS$, $m\angle T = 117^\circ$, $m\angle R = 22^\circ$, $s = 14$



$$\begin{aligned} \angle A &= 117^\circ & a &= 19 \\ \angle B &= 22^\circ & b &= 8 \\ \angle C &= 41^\circ & c &= 14 \end{aligned}$$

$$\begin{aligned} \angle C &= 180 - 117 - 22 \\ &= 41^\circ \end{aligned}$$

$$\frac{c}{\sin C} = \frac{a}{\sin A}$$

$$\frac{14}{\sin 41} = \frac{a}{\sin 117}$$

$$\frac{12.47}{\sin 41} = \frac{(\sin 41)(a)}{\sin 41}$$

$$12.47 = a$$

$$\frac{c}{\sin C} = \frac{b}{\sin B}$$

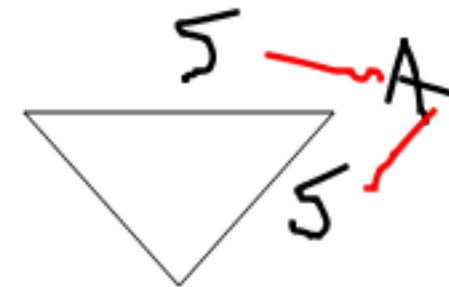
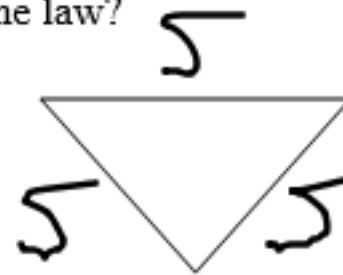
$$\frac{14}{\sin 41} = \frac{b}{\sin 22}$$

$$\frac{5.24}{\sin 22} = \frac{(\sin 22)(b)}{\sin 22}$$

$$5.24 = b$$

Cosine Law

When do you use cosine law?



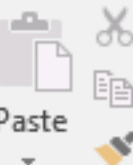
For Sides: In order to solve for a side, you need to know: the other 2 sides AND the corresponding angle

$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ b^2 &= a^2 + c^2 - 2ac \cos B \\ c^2 &= a^2 + b^2 - 2ab \cos C \end{aligned}$$

Left side of equal sign = your unknown

Right side of equal sign = your knowns

For Angles: In order to solve for an angle, you need to know: all 3 sides



Clipboard

Times New Ro

12

A

A

Aa

A

abc

A

A

A

A

A

A

A

A

A

A

A

A

AaBbCcI

AaBbCcI

AaBbCcI

Caption

Normal

No Spac...

Styles

Find

Replace

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Editing

Right side of equal sign = your knowns

For Angles: In order to solve for an angle, you need to know: all 3 sides

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos B = \frac{a^2 + c^2 - b^2}{2ac}$$

$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Left side of equal sign = your unknown

Right side of equal sign = your known

Times New Ro

12

A

A

Aa

abc

A

≡

≡

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AaBbCcI

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AaBbCcI

Caption

Normal

No Spac...

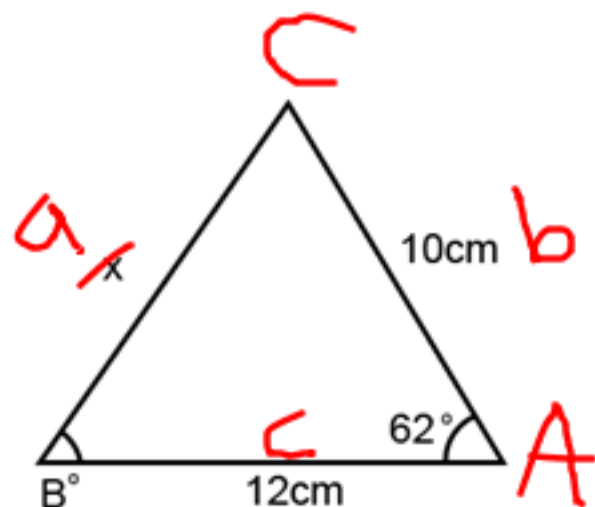
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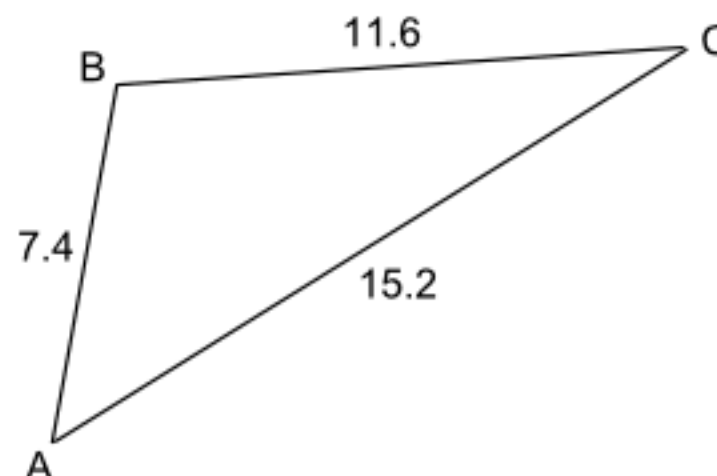
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Solve for x (side)



Solve for B (angle)



$$a^2 = b^2 + c^2 - [2bc \cos A]$$

$$a^2 = 10^2 + 12^2 - [(2)(10)(12)(\cos 62)]$$

$$a^2 = 100 + 144 - (112.6731)$$

$$\sqrt{a^2} = \sqrt{131.3269}$$

$$a = 11.5 \text{ cm}$$

Times New Ro

12

A

A

Aa

abc

A

≡

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AaBbCcI

AaBbCcI

AaBbCcI

↑ Caption

↑ Normal

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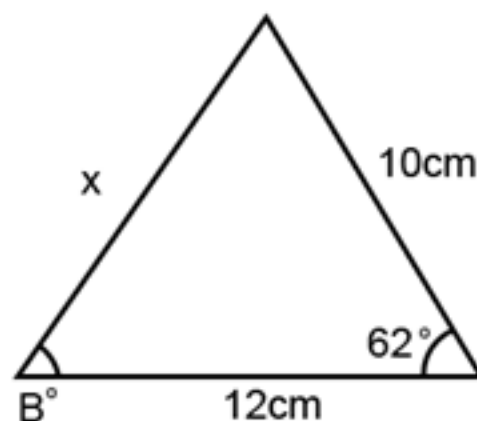
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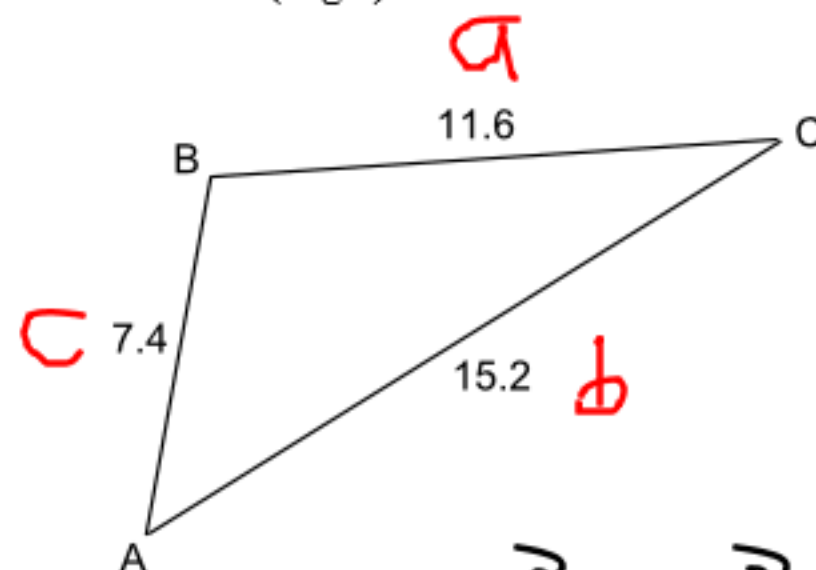
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Solve for x (side)



Solve for B (angle)



$$\cos B = \frac{a^2 + c^2 - b^2}{2ac}$$

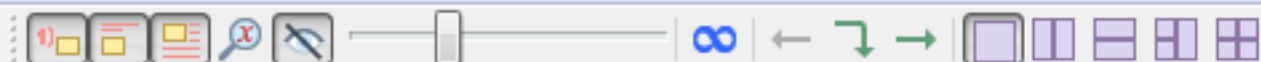
$$\cos B = \frac{11.6^2 + 7.4^2 - 15.2^2}{2(11.6)(7.4)}$$

$$\cos B = \frac{134.56 + 54.76 - 231.04}{171.68}$$

$$\cos B = \frac{-41.72}{171.68}$$

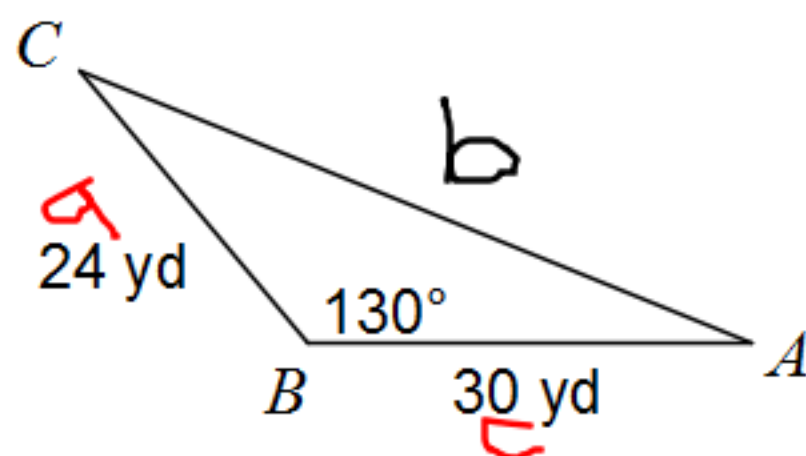
$$\cos B = -0.2430$$

$$\angle B = 104^\circ$$



Find each measurement indicated. Round your answers to the nearest tenth.

1) Find ~~AC~~



$$b^2 = a^2 + c^2 - [2ac \cos B]$$

$$b^2 = 24^2 + 30^2 - [2(24)(30) \cos 130]$$

$$b^2 =$$

$$b = 49.0 \text{ yd}$$

Q's for 5th + hw

1, d, 3, 9, 11, 12

45m 41ft 135°