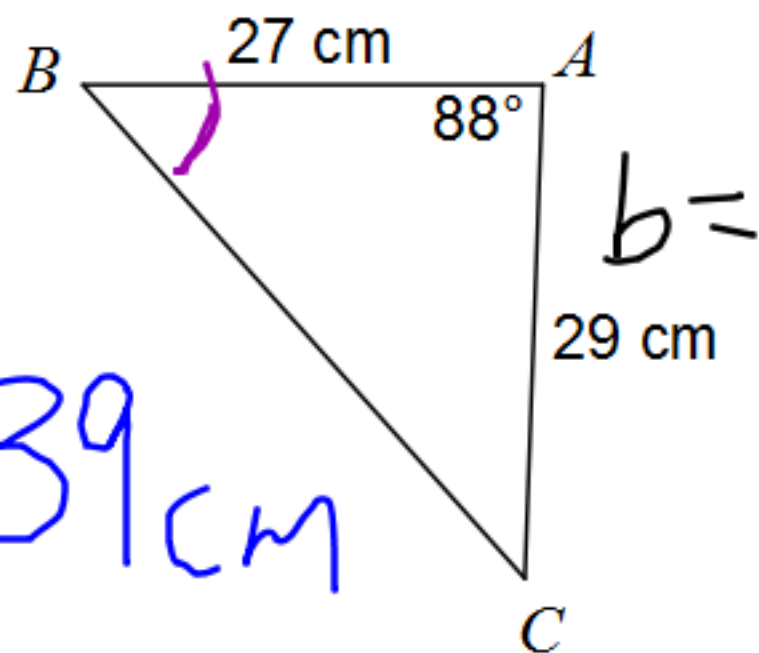


Feb 25

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

12) Find $m\angle B$



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

$$\cos B = \frac{39^2 + 27^2 - 29^2}{2(39)(27)}$$

$$a^2 = b^2 + c^2 - 2bc(\cos A)$$

$$a^2 = 29^2 + 27^2 - (2(29)(27)(\cos 88^\circ))$$

$$\sqrt{a^2} = \sqrt{1515}$$

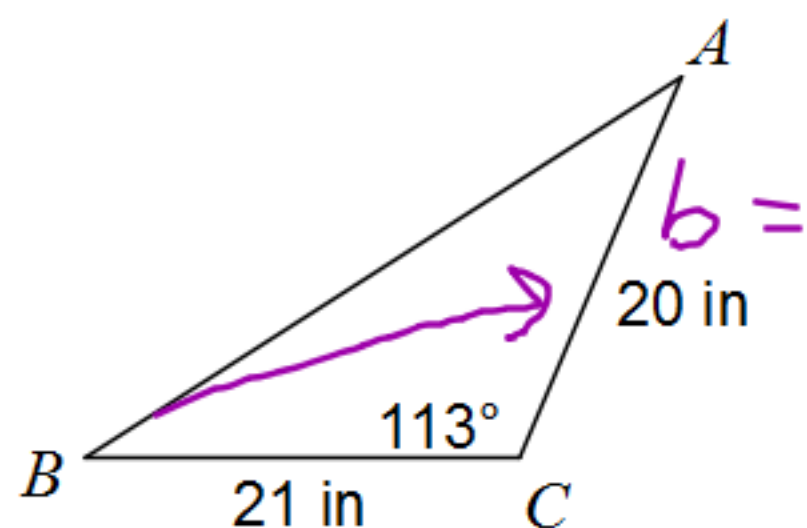
$$a = 38.92 \rightarrow 39 \text{ cm}$$

$$\cos B = 0.669$$

$$\cos^{-1} B = 48$$

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

13) Find $m\angle A$



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

$$\cos A = \frac{20^2 + 34.2^2 - (21)^2}{2(20)(34.2)}$$

$$c^2 = a^2 + b^2 - 2ab(\cos C)$$

$$c^2 = (21)^2 + (20)^2 - 2(21)(20)(\cos 113)$$

$$c^2 = 1169$$

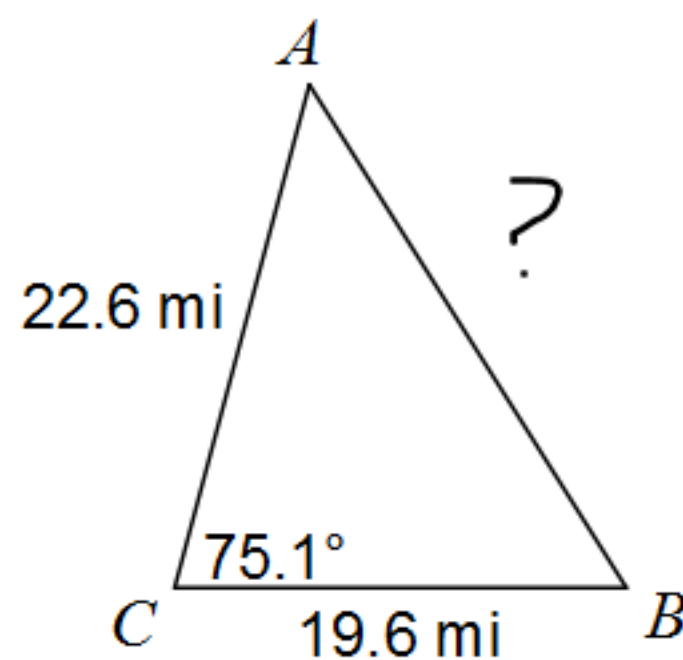
$$c = 34.2$$

$$\cos A = .8250$$

$$\cos^{-1} A = 34.4$$

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

14) Find $m\angle A$



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

$$\cos A = \frac{22.6^2 + 25.8^2 - 19.6^2}{2(22.6)(25.8)}$$

$$\cos A = 0.6793$$

$$\cos^{-1} A = 47$$

$$c^2 = a^2 + b^2 - 2ab \cos(C)$$

$$c^2 = 19.6^2 + 22.6^2 - 2(19.6)(22.6) \cos(75.1^\circ)$$

$$\sqrt{c^2} = \sqrt{667.1}$$

$$c = 25.8 \text{ mi}$$

☒ Question numbers ☐ Show answers
☒ Directions ☒ Changing questions hides answers
☒ Lines Zoom:

[More like these](#)

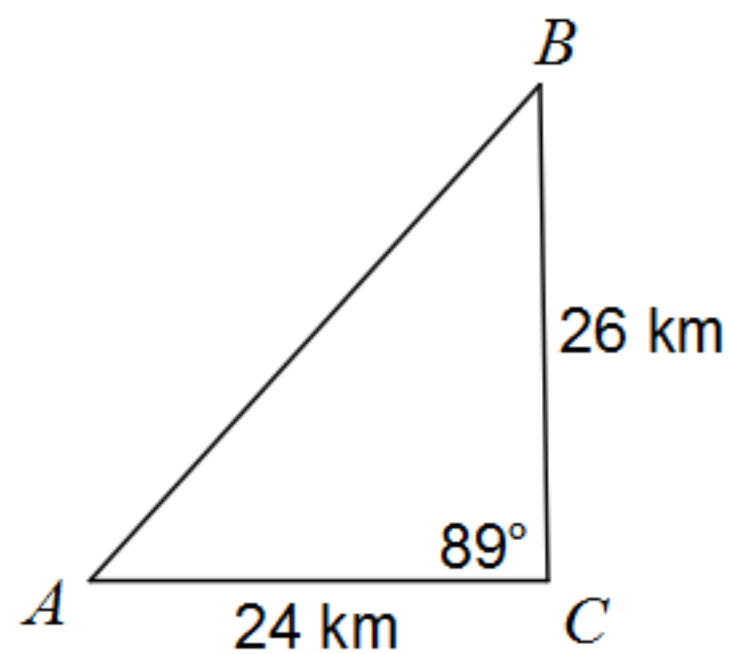
Jump



1-up

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

15) Find $m\angle A$





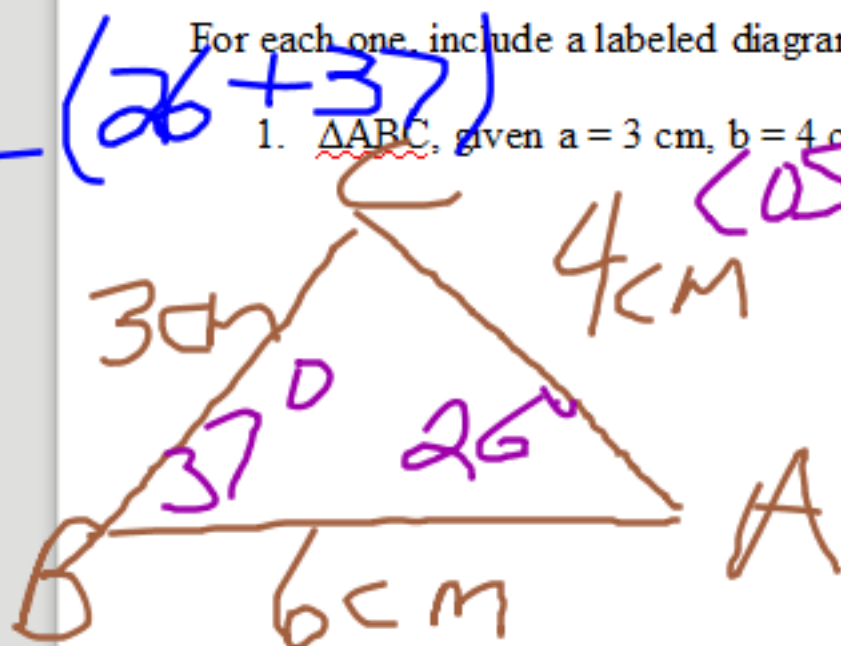
Task 2

SOLVING TRIANGLES USING THE COSINE LAW

Name:

For each one, include a labeled diagram and a reason for how you got each angle measure and side length.

- 1.
- $\triangle ABC$
- , given
- $a = 3$
- cm,
- $b = 4$
- cm and
- $c = 6$
- cm.



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

$$\cos A = \frac{4^2 + 6^2 - 3^2}{2(4)(6)}$$

$$\cos A = 0.8958$$

$$\cos^{-1} A = 26^\circ$$

$$A = 26^\circ = 3 \text{ cm}$$

$$B = 37^\circ = 4 \text{ cm}$$

$$C = 117^\circ = 6 \text{ cm}$$

- 2.
- $\triangle DEF$
- , given
- $d = 13$
- m,
- $E = 40^\circ$
- and
- $f = 8$
- m.

$$\frac{\sin B}{b} = \frac{\sin A}{a}$$

$$\frac{\sin B}{4} = \frac{\sin 26^\circ}{3}$$

$$3 \sin B = 4 \sin 26^\circ$$

$$\sin B = 0.6007$$

$$\sin^{-1} B = 37^\circ$$

- 3.
- $\triangle GHJ$
- , given
- $g = 1.9$
- mm,
- $h = 3.4$
- mm and
- $j = 2.2$
- mm.





2. $\triangle DEF$, given $d = 13$ m, $E = 40^\circ$ and $f = 8$ m.

$$e^2 = d^2 + f^2 - 2(d)(f)\cos E$$

$$e^2 = 13^2 + 8^2 - 2(13)(8)\cos 40$$

$$\sqrt{e^2} = \sqrt{73.6}$$

$$e = 8.6$$

$$D = 103^\circ$$

$$E = 40^\circ$$

$$F = 37^\circ$$

3. $\triangle GHJ$, given $g = 1.9$ mm, $h = 3.4$ mm and $j = 2.2$ mm.

$$\cos D = \frac{e^2 + f^2 - d^2}{2ef}$$

$$= \frac{8.6^2 + 8^2 - 13^2}{2(8.6)(8)}$$

$$\cos D = -0.2256$$

$$D = 103^\circ$$

4. $\triangle KMN$, given $K = 110^\circ$, $m = 41$ cm and $n = 34$ cm.

$$d = 13 \text{ m}$$

$$e = 8.6 \text{ m}$$

$$f = 8 \text{ m}$$

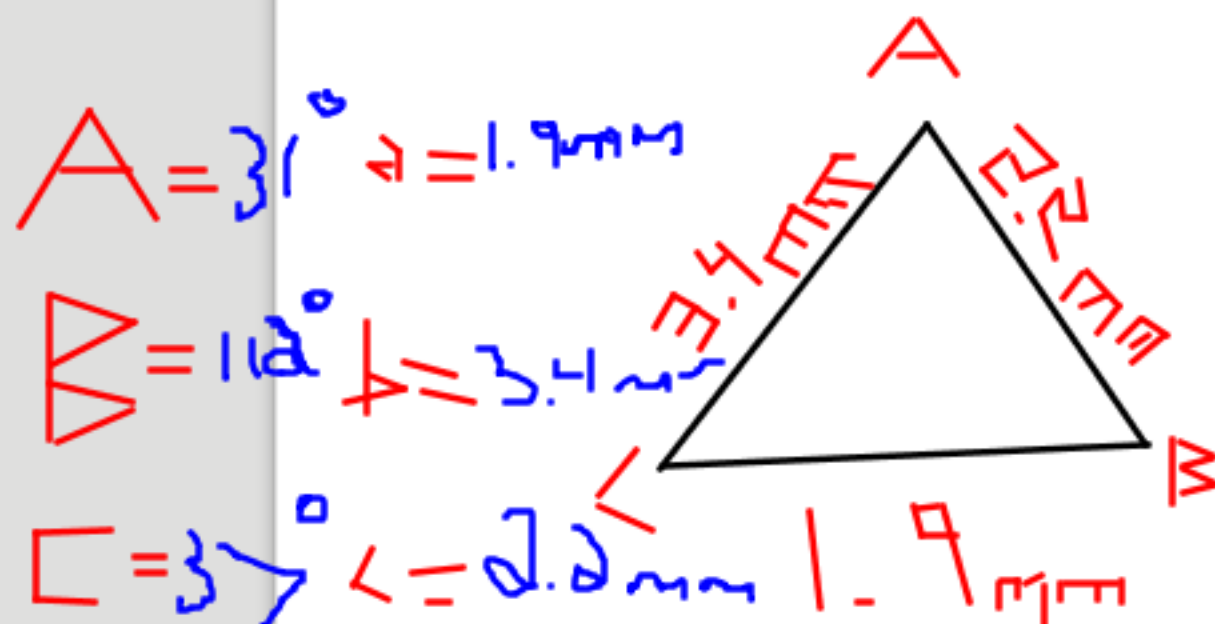
$$F = 180 - 103 - 40$$

$$\angle F = 37^\circ$$





3. $\triangle GHJ$, given $g = 1.9$ mm, $h = 3.4$ mm and $j = 2.2$ mm.



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

$$\cos A = \frac{3.4^2 + 2.2^2 - 1.9^2}{2(3.4)(2.2)}$$

$$\cos A = \frac{12.79}{14.96}$$

4. $\triangle KMN$, given $K = 110^\circ$, $m = 41$ cm and $n = 34$ cm.

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

$$\cos C = \frac{1.9^2 + 3.4^2 - 2.2^2}{2(1.9)(3.4)}$$

$$\cos C = \frac{10.33}{12.92}$$

$$\cos A = 0.8549$$

$$\cos^{-1} A = 31.25$$

$$\cos C = 0.7995$$

$$\cos^{-1} C = 36.9$$

$$180 - (31 + 37)$$

$$112$$

5. $\triangle PQR$, given $q = 9.23$ m, $p = 7.4$ m and $R = 84^\circ$.



$$K = 110^\circ$$

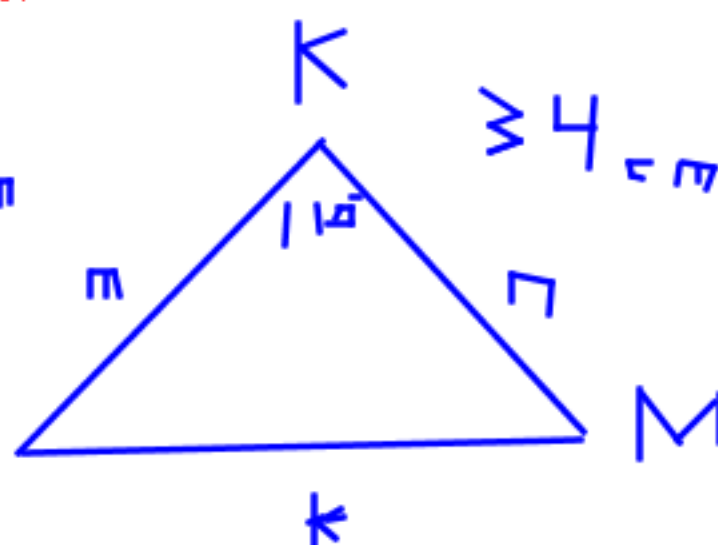
$$M =$$

$$N =$$

$$m = 41 \text{ cm}$$

$$n = 34 \text{ cm}$$

4. $\triangle KMN$, given $K = 110^\circ$, $m = 41 \text{ cm}$ and $n = 34 \text{ cm}$.



$$\cos k = \frac{34^2 + 41^2 - 2(34)(41)\cos K}{k^2}$$

5. $\triangle PQR$, given $q = 9.23 \text{ m}$, $p = 7.4 \text{ m}$ and $R = 84^\circ$.

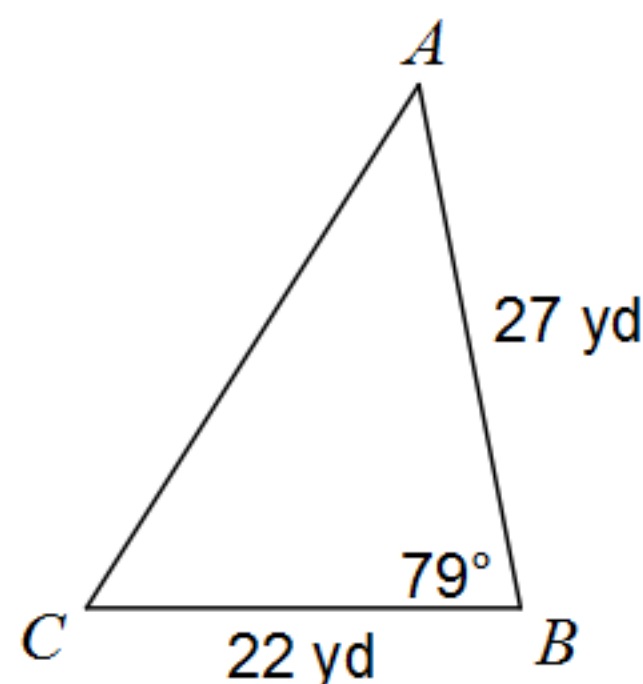
6. $\triangle STU$, given $u = 11 \text{ km}$, $s = 14 \text{ km}$ and $t = 20 \text{ km}$.



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

cos. 3 sides SSS
SAS

1)



$$\begin{aligned}
 A &= 43.5^\circ & a &= 22 \text{ yd} \\
 B &= 79^\circ & b &= 31.4 \text{ yd} \\
 C &= 57.5^\circ & c &= 27 \text{ yd}
 \end{aligned}$$

$$\begin{aligned}
 b^2 &= a^2 + c^2 - 2ac(\cos B) \\
 b^2 &= 22^2 + 27^2 - 2(22)(27)(\cos 79^\circ)
 \end{aligned}$$

180 -

$$b^2 = 986.3$$

$$b = 31.4 \text{ yd}$$

$$\sin A = 0.6878$$

$$\angle A = 43.5^\circ$$

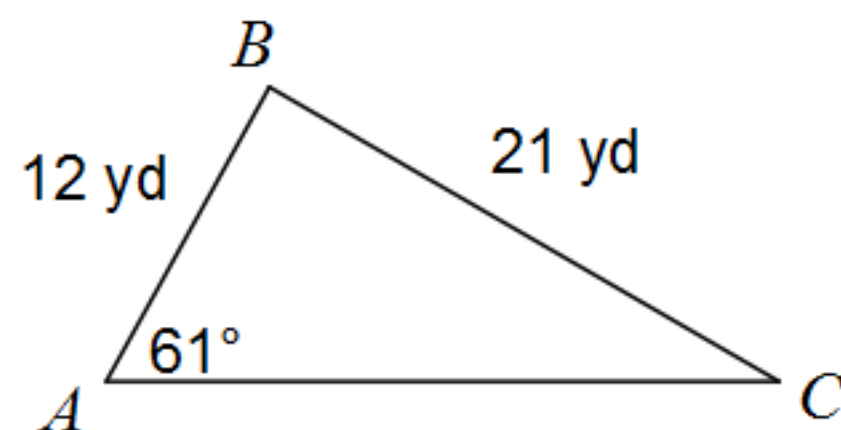
$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

$$\frac{\sin A}{22} = \frac{\sin 79^\circ}{31.4}$$

$$31.4 \sin A = 22 \sin 79^\circ$$

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

2)



$$\begin{aligned}
 \angle A &= 61^\circ & a &= 21 \text{ yd} \\
 \angle B &= 89^\circ & b &= 24 \text{ yd} \\
 \angle C &= 30^\circ & c &= 12 \text{ yd}
 \end{aligned}$$

$$\sin C = \sin A \rightarrow \sin C = 0.4999$$

$$\sin^{-1} C = 29.98$$

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

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

$$b^2 = 21^2 + 12^2 - 2(21)(12)(\cos 89^\circ)$$

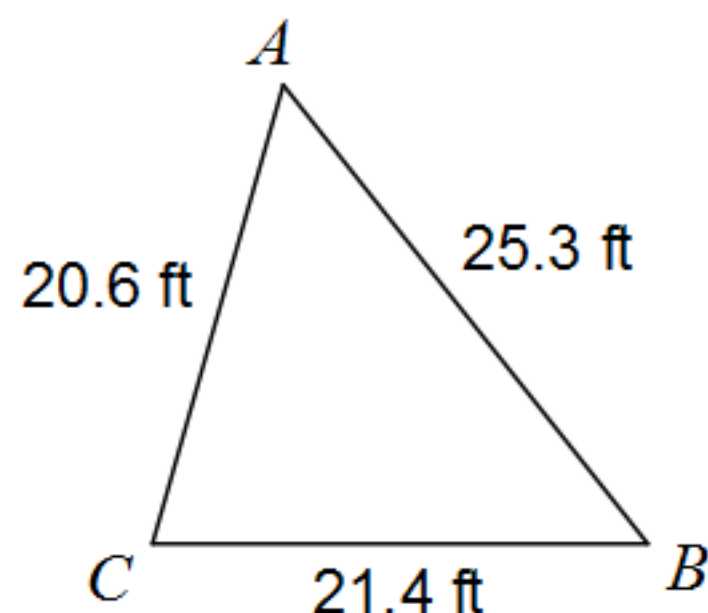
$$b^2 = 576.2$$

$$b = 24$$

$$21 \sin C = 12 \sin 61$$

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

3)



$$\begin{aligned}
 A &= 54.4^\circ & a &= 21.4 \text{ ft} \\
 B &= 5^\circ & b &= 20.6 \text{ ft} \\
 C &= & c &= 25.3 \text{ ft}
 \end{aligned}$$

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

$$\cos A = \frac{(20.6)^2 + (25.3)^2 - (21.4)^2}{2(20.6)(25.3)}$$

$$\cos A = 0.5818$$

$$\cos^{-1} A = 54.4^\circ$$

$$\frac{\sin B}{b} = \frac{\sin A}{a}$$

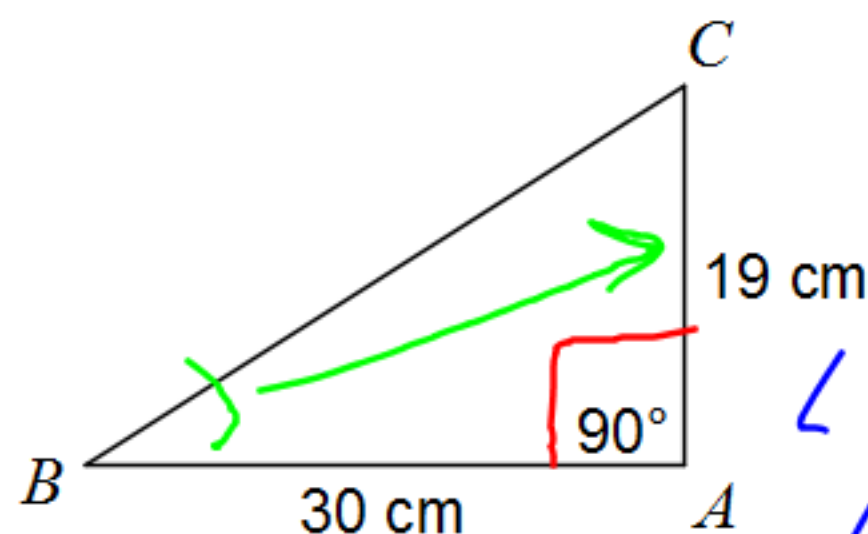
$$\frac{\sin B}{20.6} = \frac{\sin 54.4}{21.4}$$

$$21.4 \sin B = 20.6 \sin 54.4$$

$$\sin B = 0.7827$$

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

4)



$$A = 90^\circ \quad a = 23.2 \text{ cm}$$

$$B = 32.3^\circ \quad b = 19 \text{ cm}$$

$$C = 57.7^\circ \quad c = 30 \text{ cm}$$

$$\begin{aligned} \angle C &= 180 - (90 + 32.3) \\ \angle C &= 180 - 122.3 \\ \angle C &= 57.7 \end{aligned}$$

$$\tan B = \frac{O}{A}$$

$$a^2 + b^2 = c^2$$

$$a^2 + 19^2 = 30^2$$

$$\quad \quad \quad - 361 \quad \quad \quad - 361$$

$$a^2 + 361 = 900$$

$$a^2 = 539$$

$$a = 23.2$$

$$\tan B = \frac{19}{30}$$

$$\tan B = 0.6333$$

$$\tan^{-1} = 32.3$$

Option 1 $\rightarrow$ \$100,000 for
30 days of work

Option 2 $\rightarrow$ \$0.01 that doubles
every day for 30
days