

1. a) Label and solve for the hypotenuse.

$a^2 + b^2 = c^2$
 $21^2 + 20^2 = x$
 $441 + 400 = 841$
 $\sqrt{841} = 29$
 $x = 29$

b) What is $\cos(C)$ in the triangle?
 $\cos(\theta) = 20/29$

2. Calculate the length of \overline{AB} . Round the answer to the nearest tenth. Show all of your work.

$\sin(52^\circ) = x/8 = 8$
 $8 \cdot \sin(52^\circ) = x$
 $6.3 \approx x$

3. Mr. Linne took a plane to Chicago. The plane had a height of 500 meters after it traveled a horizontal distance of 800 meters. What was the angle θ of the plane's take-off? **SHOW WORK**

$\tan(\theta) = 500/800$
 $\tan^{-1}(500/800) = \theta$
 $32 \approx \theta$

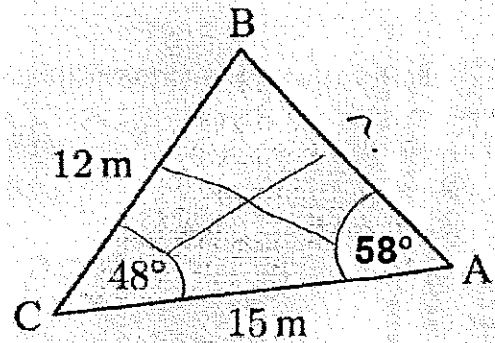
4.

a) Find the length of \overline{AB} . Round to the nearest tenth. Show all of your work.

$$\frac{\sin(58)}{12} = \frac{\sin(48)}{x}$$

$$\left(\frac{12 \cdot \sin(48)}{\sin(58)}\right) = x \cdot \frac{\sin(58)}{\sin(58)}$$

$$10.51 = x$$



b) Find the area of triangle ABC. Show all of your work.

$$\text{area} = \frac{1}{2} ab \sin C$$

$$\frac{1}{2} \cdot 12 \cdot 15 \cdot \sin(48)$$

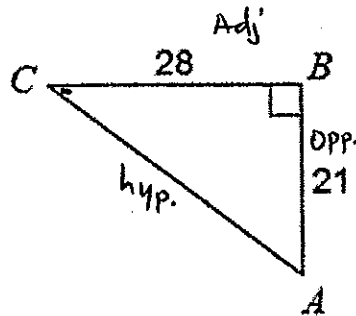
$$\frac{1}{2} \cdot 180 \cdot \sin(48)$$

$$90 \cdot \sin(48)$$

$$66.88$$

1.

a) Label and solve for the hypotenuse.



$$h^2 = 21^2 + 28^2$$

$$\sqrt{h^2} = \sqrt{1225}$$

$$h = \underline{\underline{35}}$$

b) What is $\cos(C)$ in the triangle?

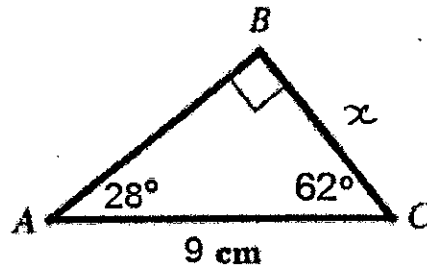
$$\cos \theta = \frac{28}{35}$$

$$\cos^{-1}\left(\frac{28}{35}\right) = \theta$$

$$\theta \approx \underline{\underline{36.9^\circ}}$$

2. Calculate the length of \overline{BC} .

Round the answer to the nearest tenth
Show all of your work.



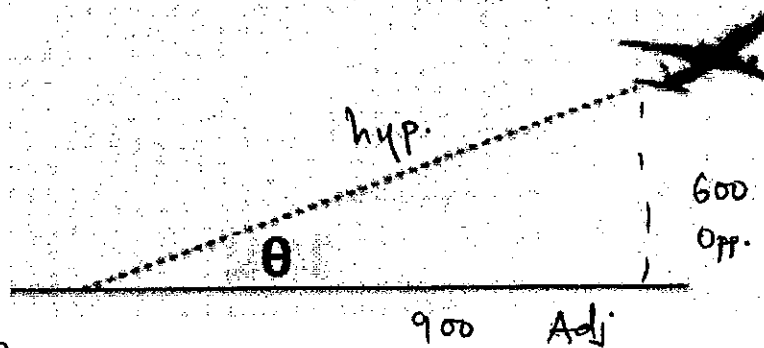
$$\frac{\sin 90^\circ}{9} = \frac{\sin 28^\circ}{x}$$

$$x \frac{\sin 90^\circ}{\sin 90^\circ} = \frac{9 \sin 28^\circ}{\sin 90^\circ}$$

$$x = \frac{9 \sin 28^\circ}{\sin 90^\circ}$$

$$x \approx \underline{\underline{4.2 \text{ cm}}}$$

3. Ms. Perkins took a plane to Chicago. The plane had a **height** of 600 meters after it traveled a **horizontal distance** of 900 meters. What was the angle θ of the plane's take-off? **SHOW WORK**



$$\tan \theta = \frac{600}{900}$$

$$\theta = \tan^{-1}\left(\frac{600}{900}\right)$$

$$\theta \approx \underline{\underline{33.7^\circ}}$$

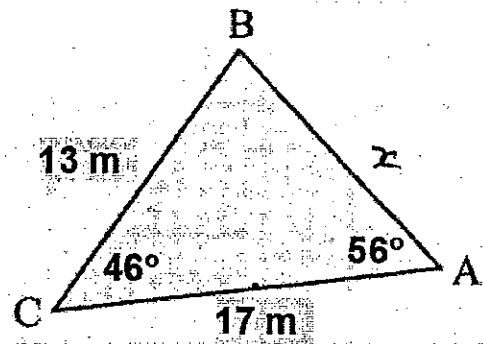
4. Find the length of \overline{AB} . Round to the nearest tenth. Show all of your work.

$$\frac{\sin(56^\circ)}{13} = \frac{\sin(46^\circ)}{x}$$

$$13 \frac{\sin(46^\circ)}{\sin(56^\circ)} = x \frac{\sin(56^\circ)}{\sin(56^\circ)}$$

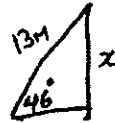
$$x = \frac{13 \sin(46^\circ)}{\sin(56^\circ)}$$

$$x \approx \underline{\underline{11.3\text{M}}}$$



- b. Find the area of triangle ABC. Show all of your work.

$$13 \times \sin 46 = \frac{x \times 13}{13}$$



$$x = 13 \sin 46 \rightarrow \text{height}$$

$$\text{Area} = \frac{1}{2} bh$$

$$= \frac{1}{2} \times 17 \times (13 \sin(46))$$

$$\text{Area} = \cancel{110.5 \sin(46)} \quad 110.5 \sin(46)$$

$$\text{Area} \approx \underline{\underline{79.5\text{m}^2}}$$

1.

a) Label and solve for the hypotenuse.

$20^2 + 21^2 = c^2$
 $400 + 441 = c^2$
 $841 = c^2$
 $\sqrt{841} = \boxed{29}$

b) What is $\cos(C)$ in the triangle?

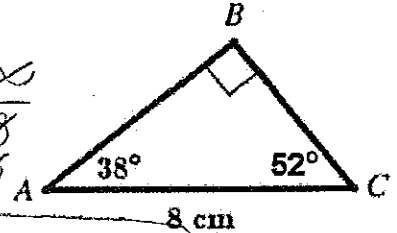
$\cos^{-1}\left(\frac{21}{29}\right) \approx 28.7$
 $\cos^{-1}\left(\frac{21}{29}\right) = \theta \quad \theta \approx 43$

2. Calculate the length of \overline{AB} .

Round the answer to the nearest tenth

Show all of your work.

$\sin(52) = \frac{x}{8}$
 $x \approx 8$

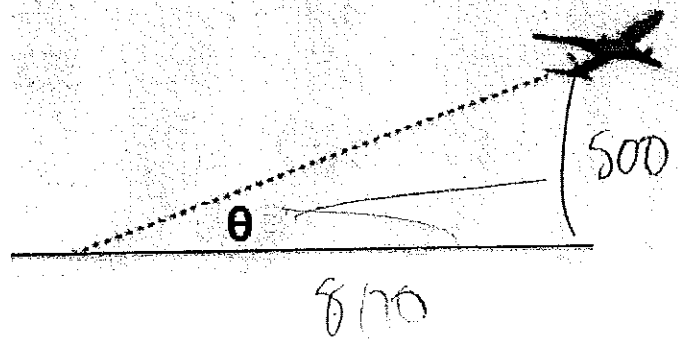


$8 \sin(52) = x$
 $x \approx 6.3$

3. Mr. Linne took a plane to Chicago. The plane had a height of 500 meters after it traveled a horizontal distance of 800 meters. What was the angle θ of the plane's take-off? **SHOW WORK**

$\tan^{-1}\left(\frac{500}{800}\right) = \theta$

$\theta \approx 37$



4.

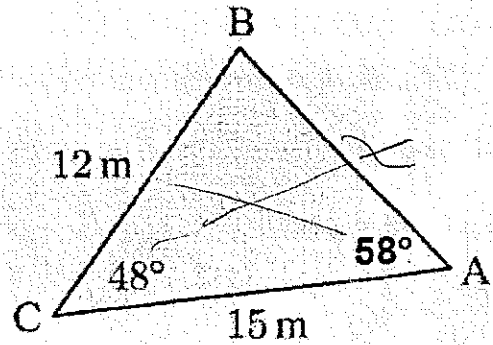
a) Find the length of \overline{AB} . Round to the nearest tenth. Show all of your work.

$$\frac{\sin(58)}{12} = \frac{\sin(48)}{x}$$

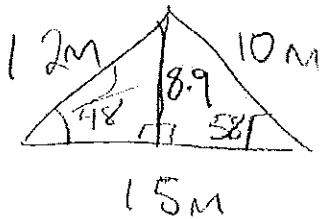
$$x \sin(58) = 12 \sin(48)$$

$$\frac{x \sin(58)}{\sin(58)} = \frac{12 \sin(48)}{\sin(58)}$$

$$x \approx 10$$



b) Find the area of triangle ABC. Show all of your work.



$$\sin(48) = \frac{x}{12}$$

$$0.735 = \frac{x}{12}$$

$$12 \sin(48) = x$$

$$8.9 \approx x$$

$$15 \cdot (12 \sin(48)) = 133.76$$

$$\frac{133.76}{2}$$

$$\text{AREA} = 66.88 \text{ m}^2$$

soh cah toa

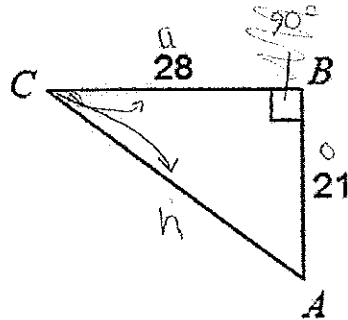
1.

a) Label and solve for the hypotenuse.

$$28^2 + 21^2 = h^2$$

$$h^2 = \sqrt{1225}$$

$$h = 35$$



b) What is $\cos(C)$ in the triangle?

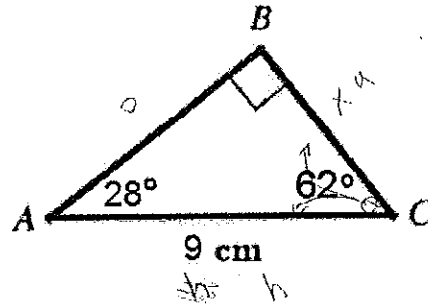
$$\cos(C) = \cos^{-1}\left(\frac{28}{35}\right) \approx$$

$$\cos(C) \approx 36.86^\circ$$

2. Calculate the length of \overline{BC} .

Round the answer to the nearest tenth

Show all of your work.



$$9 \cdot \cos(62^\circ) = \frac{x}{h}$$

$$9 \cdot \cos(62^\circ) = x$$

$$4.22 \approx x$$

3. Ms. Perkins took a plane to Chicago. The plane had a height of 600 meters after it traveled a horizontal distance of 900 meters. What was the angle θ of the plane's take-off? **SHOW WORK**

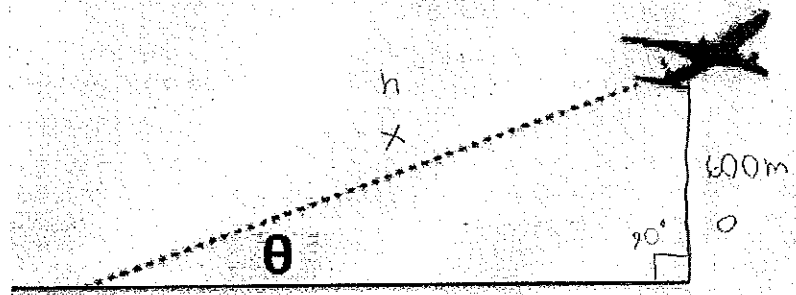
$$\frac{\cos(90^\circ)}{1} = \frac{600}{x}$$

$$\frac{600}{\cos(90^\circ)} = \frac{x \cdot \cos(90^\circ)}{\cos(90^\circ)}$$

$$\frac{600}{\cos(90^\circ)} = x$$

well then...

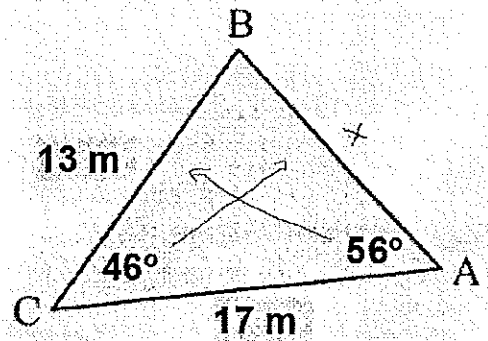
$$\frac{600}{0} = x$$



$$\tan(\theta) = \tan^{-1}\left(\frac{600}{900}\right) = 33.69^\circ$$

4.

a. Find the length of \overline{AB} . Round to the nearest tenth. Show all of your work.



$$\frac{\sin(46)}{x} = \frac{\sin(56)}{13}$$

$$x \cdot \sin(56) = \sin(46) \cdot 13$$

$$x = \frac{\sin(46) \cdot 13}{\sin(56)}$$

$$x \approx 11.27 \text{ m}$$

sin can be

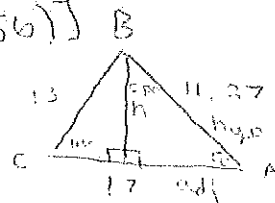
b. Find the area of triangle ABC. Show all of your work.

②

$$\text{Area} = .5 \cdot \text{base} \cdot h$$

$$\text{Area} = .5 \cdot (17) \cdot [11.27 \cdot \sin(56)]$$

$$\text{Area} = 79.41 \text{ m}^2$$



$$\sin = \frac{\text{opp}}{\text{hyp}}$$

$$11.27 \cdot \sin(56) = \frac{h}{11.27}$$

$$11.27 \cdot \sin(56) = h$$

$$9.34 \text{ m} = h$$