



# Assignment #5

$$\text{csc} = \frac{1}{\sin}$$

$$\text{sec} = \frac{1}{\cos}$$

$$\text{co-tan} = \frac{1}{\tan}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

## Working with Trig Ratios Section 8.3

- 1) Write all the trig formulas (including inverses) relating the sides and angles in this triangle. **Draw the right triangle BCA where angle C is the Right angle.**

Sin B =	CSC B =	Sin A =	CSC A =
Cos B =	SEC B =	Cos A =	SEC A =
Tan B =	COT B =	Tan A =	COT A =

- 2) Draw a right triangle for each problem. Label the sides and angle then solve to find the unknown measure.

a)  $\sin 20 = \frac{a}{12}$

b)  $\cos 80 = \frac{25}{b}$

c)  $\tan 55 = \frac{c+4}{c}$

d)  $\sin^{-1}\left(\frac{17}{30}\right) = \text{Angle A}$

- 3) For each triangle, find the length of the labeled side. ACB is a right angle

a) Angle A =  $32^\circ$        $\overline{AC} = 14.7$  find a

b) Angle B =  $47.2^\circ$        $\overline{BA} = 24.6$  find b

c) Angle B =  $47^\circ$        $\overline{AC} = 58$  find c

- 4) For each triangle, draw the right triangle and find the measure of the missing angle. Angle ACB is right angle.

a)  $a=36$     $c=125$  Find Angle A

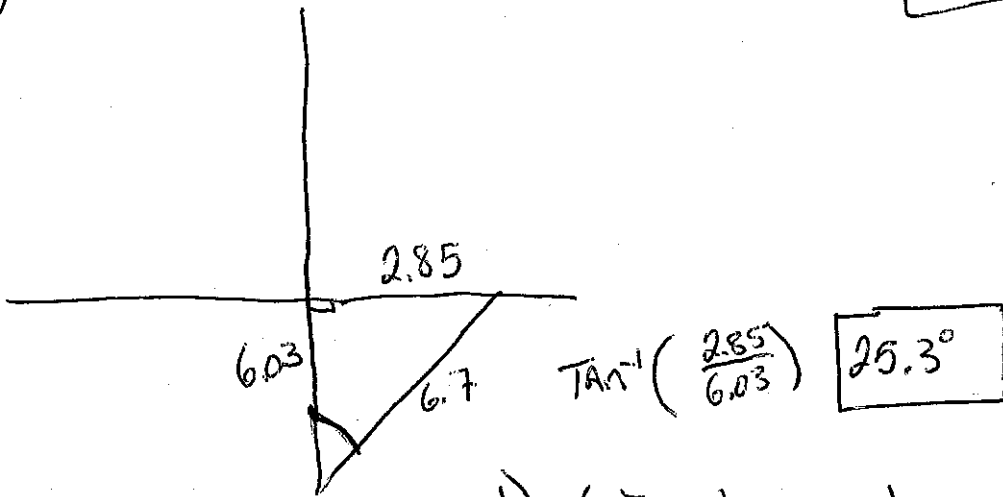
b)  $a=7.3$     $b=4.2$  Find angle B

c)  $b=12$     $a=60$  Find angle B

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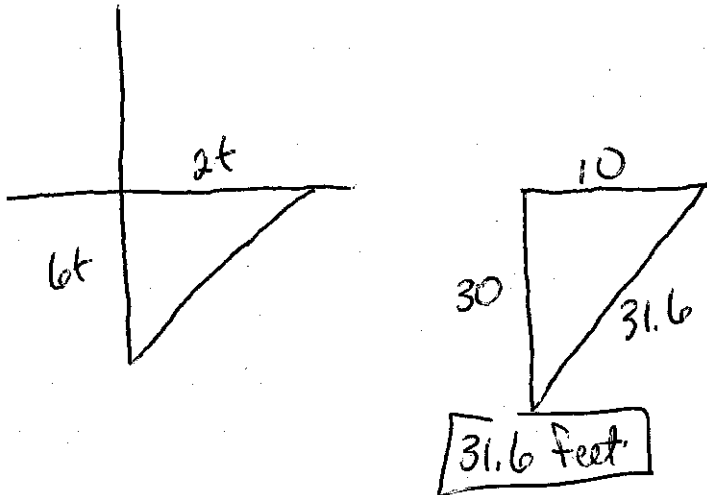
Side A

①



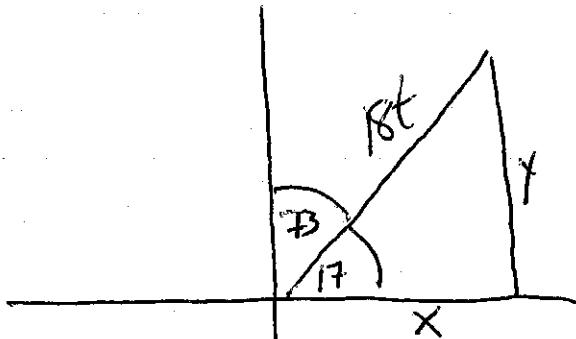
b) 6.7 miles apart

②



c)  $D = \sqrt{4t^2 + 36t^2}$

③



b)  $750 = 18t$

$(41.7 \text{ hours} = t)$

c)  $\cos 17 = \frac{x}{750}$

$x = 717.2 \text{ mile}$

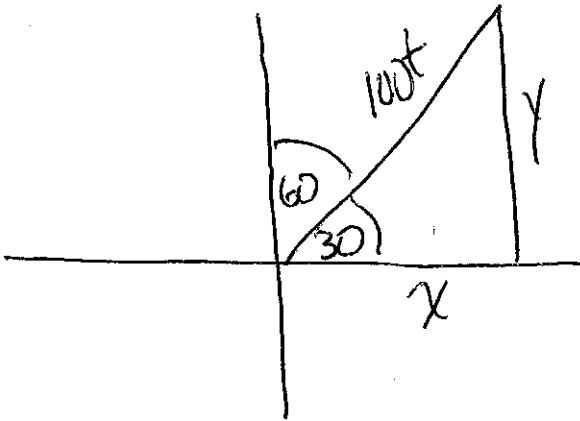
$\sin 17 = \frac{y}{750}$

$(y = 219.3)$

Check with Pythagorean theorem  
 $717.2^2 + 219.3^2 = 749.97^2$   
 Pythagorean theorem checks out.

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④



$$a) \cos 30 = \frac{x}{100t}$$

$$\sin 30 = \frac{y}{100t}$$

$$x = 100t \cos 30$$

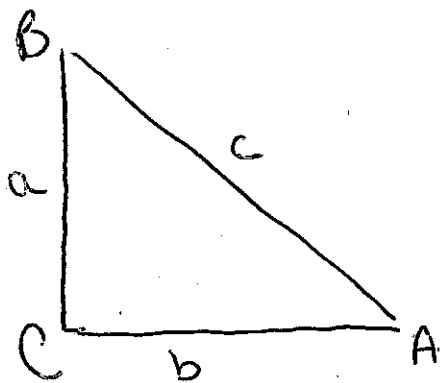
$$y = 100t \sin 30$$

b)

$$0 \leq t \leq 5$$

# Assignment #5

①

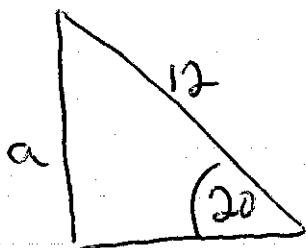


$\sin B = \frac{b}{c}$	$\csc B = \frac{c}{b}$
$\cos B = \frac{a}{c}$	$\sec B = \frac{c}{a}$
$\tan B = \frac{a}{b}$	$\cot B = \frac{b}{a}$

$\sin A = \frac{a}{c}$	$\csc A = \frac{c}{a}$
$\cos A = \frac{b}{c}$	$\sec A = \frac{c}{b}$
$\tan A = \frac{a}{b}$	$\cot A = \frac{b}{a}$

②

a)

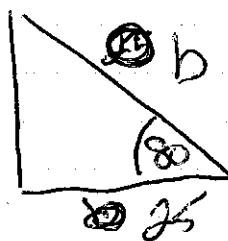


$$\sin 20 = \frac{a}{12}$$

$$a = 4.1$$

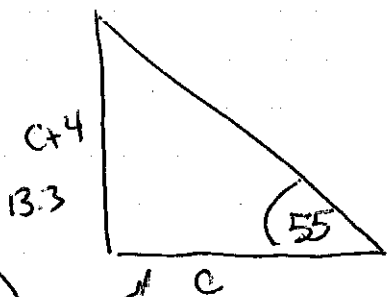
b)

$$\cos 80 = \frac{25}{b}$$



$$b = 143.97$$

c)



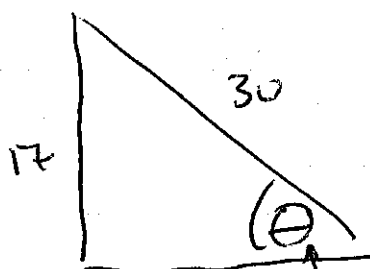
$$c = 9.3$$

$$\tan 55 = \frac{c+4}{c}$$

$$1.43c = c+4$$

$$.43c = 4$$

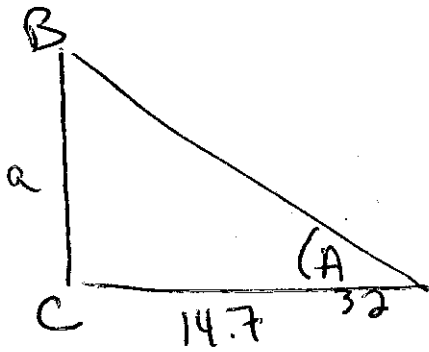
d)



$$\sin^{-1}\left(\frac{17}{30}\right)$$

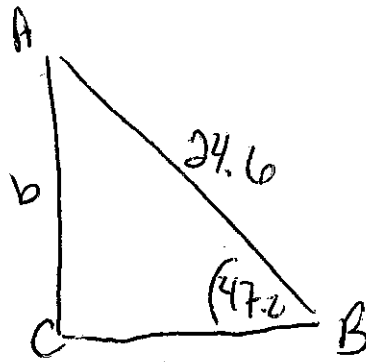
$$34.5$$

(#3)



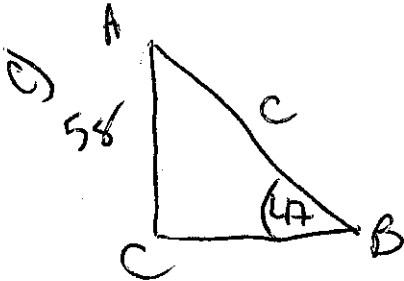
$$\tan 32 = \frac{a}{14.7}$$

b)



$$\sin 47.2 = \frac{b}{24.6}$$

$$18 = b$$



$$\sin 47 = \frac{58}{c}$$

$$c = 79.3$$