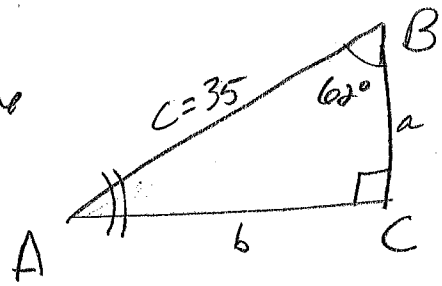
Pg 1 ne

(1)



Find
$\angle A = 28°$
$b = 16.43\,m$
$a = 30.91\,m$

Pg 1 ne

$\angle A$: $\angle A = 90 - 62$
$= 28°$

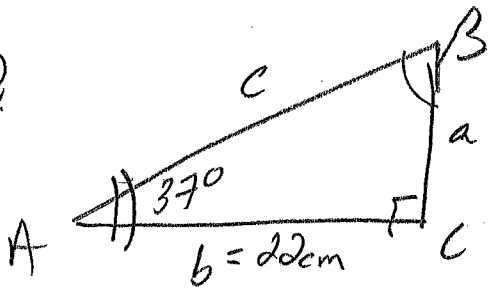
b: $\cos(62°) = \frac{a}{35}$

$\Rightarrow a = 35\cos(62°)$
$= 16.43150\ldots$
≈ 16.43

a: $\sin(62°) = \frac{b}{35}$

$\Rightarrow b = 35\sin(62°)$
$= 30.91316\ldots$
$= 30.91$

(2)



FIND:
$\angle B = 53°$
$a = 16.58\,cm$
$c = 27.55\,cm$

$\angle B$: $\angle B = 90 - 37$
$= 53°$

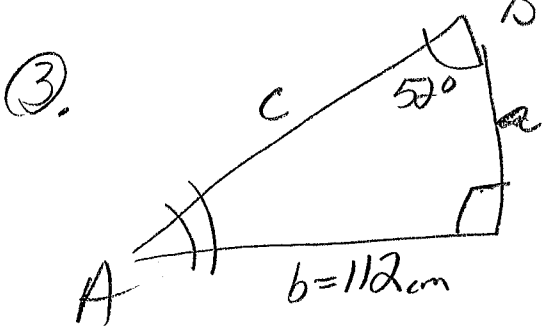
a: $\frac{\tan(37°)}{1} = \frac{a}{22}$

$\Rightarrow a = 22\tan(37°)$
$= 16.57818\ldots$
$= 16.58$

c: $\frac{\cos(37°)}{1} = \frac{22}{c}$

$\Rightarrow c\cdot\cos(37°) = 22$
$\Rightarrow c = \frac{22}{\cos(37°)}$
$= 27.54698\ldots$
$= \boxed{27.55}$

(3)



Find
$\angle A = 38°$
$a = 87.50\,cm$
$c = 142.13\,cm$

$\angle A$: $\angle A = 90 - 52$
$= 38°$

a: $\frac{\tan(52°)}{1} = \frac{112}{a}$

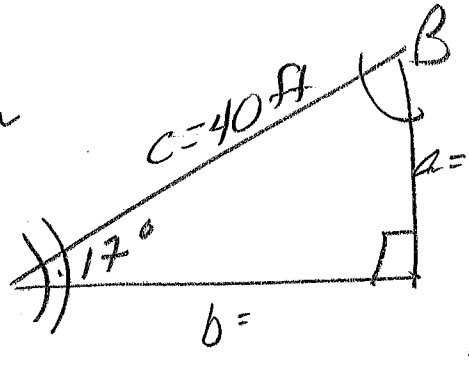
$\Rightarrow a\tan(52°) = 112$
$\Rightarrow a = \frac{112}{\tan(52°)}$
$= 87.50395\ldots$
$= 87.50$

c: $\frac{\sin(52°)}{1} = \frac{112}{c}$

$\Rightarrow c\cdot\sin(52°) = 112$
$\Rightarrow c = \frac{112}{\sin(52°)}$
$= 142.13004\ldots$
$= 142.13$

I

(4). given



Find

$\angle B = 73°$

$a = 11.69$ ft

$b = 38.25$ ft

$\angle B$: $\angle B = 90 - 17 = 73°$

a: $\frac{\sin(17°)}{1} = \frac{a}{40}$

$\Rightarrow a = 40 \cdot \sin(17°)$

$= 11.69486\ldots$

$= 11.69$

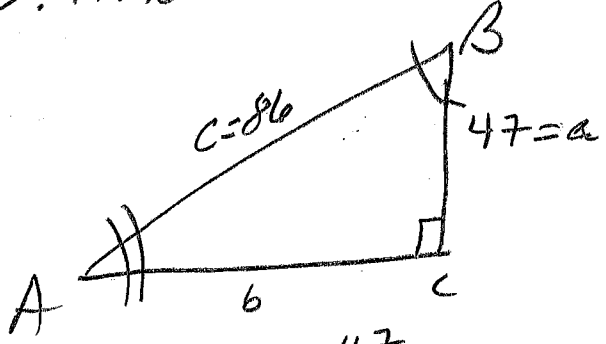
b: $\frac{\cos(17°)}{1} = \frac{b}{40}$

$\Rightarrow b = 40 \cdot \cos(17°)$

$= 38.25129\ldots$

$= 38.25$

(5). Note this one is trickier since NO ANGLES is given!



Find (acute)

$\angle A = 33.13°$

$\angle B = 56.28°$

$b = 71.53$ ft or 72.02 ft

$\angle A$: $\sin(A) = \frac{47}{86}$

$\Rightarrow \sin^{-1}(\sin(A)) = \sin^{-1}\left(\frac{47}{86}\right)$

$\Rightarrow \angle A = \sin^{-1}\left(\frac{47}{86}\right)$

$= 33.12802\ldots$

$= 33.13$

$\angle B$: $\cos(B) = \frac{47}{86}$

$\Rightarrow \cos^{-1}(\cos(B)) = \cos^{-1}\left(\frac{47}{86}\right)$

$\Rightarrow \angle B = \cos^{-1}\left(\frac{47}{86}\right)$

$= 56.27669\ldots$

$= 56.28°$

b: Note must use one of the acute angles already found. I will choose $\angle A$, although $\angle B$ would give the same result. In fact, I'll show both although you need only one:

$\frac{\cos(33.13°)}{1} = \frac{b}{86} \Rightarrow b = 86 \cdot \cos(33.13°)$

$= 72.01920\ldots$

$= 72.02$

cont.

⇓ choosing ∠B:

$\frac{\sin(\angle B)}{1} = \frac{b}{86} \Rightarrow b = 86 \cdot \sin(56.028^\circ)$

$= 71.53139\ldots$

$= 71.53$ ft

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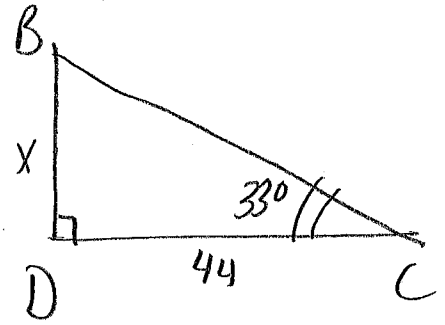
(6)



Find: $x = 28.57$ ft

$\frac{\tan(33^\circ)}{1} = \frac{x}{44}$

$\Rightarrow x = 44 \cdot \tan(33^\circ)$

$= 28.5739\ldots$

$= 28.57$

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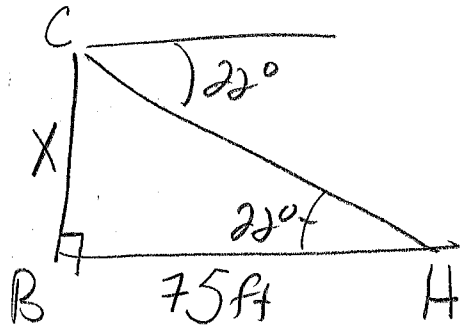
(7)



The cowboy's ∠ of depression equals the horse's ∠ of elevation

so $\angle H = 22^\circ$

so $\frac{\tan(22^\circ)}{1} = \frac{x}{75}$

$\Rightarrow x = 75 \cdot \tan(22^\circ)$

$= 30.301966\ldots$

$= 30.30$

Find $x = 30.30$ ft

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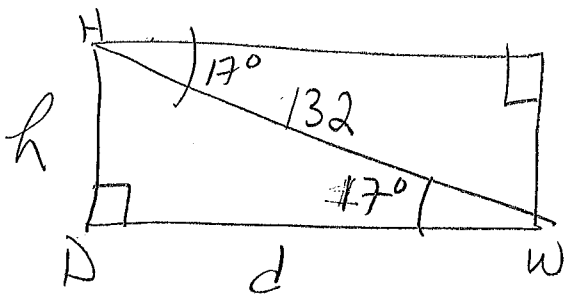
(8)



(A) Find $h = 38.59$ m

$\frac{\sin(17^\circ)}{1} = \frac{h}{132} \Rightarrow h = 132\sin(17^\circ)$

$= 38.59306\ldots$

$= 38.59$

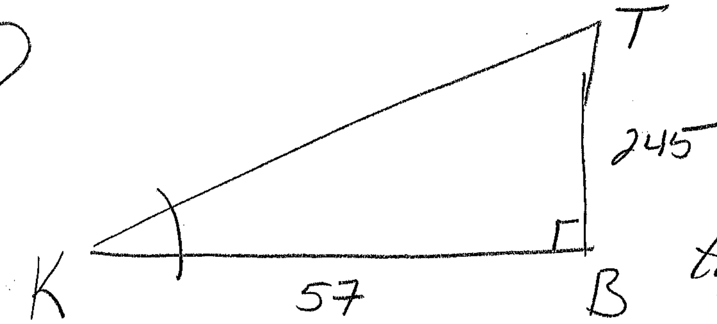
(B) Find $d = 126.23$ m

$\frac{\cos(17^\circ)}{1} = \frac{d}{132} \Rightarrow d = 132 \cdot \cos(17^\circ)$

$= 126.23222\ldots$

$= 126.23$

(9)



Find $\measuredangle K = 76.90°$

$\tan(K) = \dfrac{245}{57}$

$\Rightarrow \tan^{-1}(\tan(K)) = \tan^{-1}\left(\dfrac{245}{57}\right)$

$\Rightarrow K = \tan^{-1}\left(\dfrac{245}{57}\right)$

$= 76.90294\ldots$

$= 76.90°$

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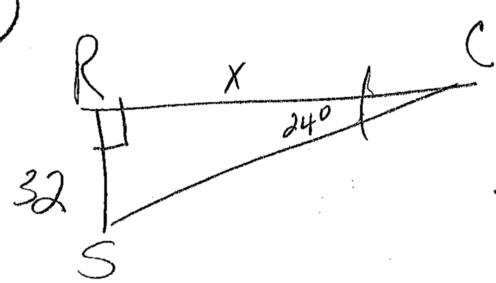
(10)



Find $x = 71.87$ m

$\tan(24°) = \dfrac{32}{x}$

$\Rightarrow x \cdot \tan(24°) = 32$

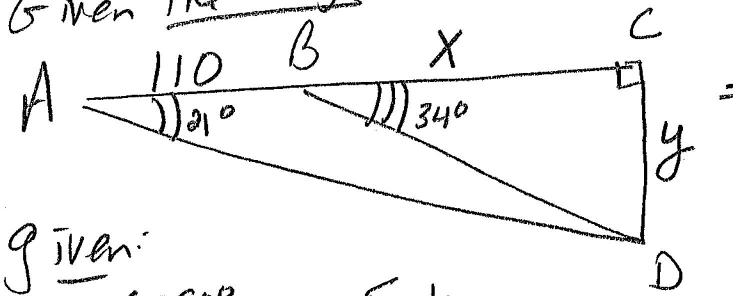
$\Rightarrow x = \dfrac{32}{\tan(24°)}$

$\Rightarrow x = 71.87317\ldots$

$\Rightarrow x = 71.87$

Do ALSO THIS Problem:

Given the figure:



given:
$\measuredangle C = 90°$
$\measuredangle A = 21°$
$\measuredangle DBC = 34°$
$AB = 110$ m

Find
(i) CD = m
(ii) BC = m

we have

$\tan(34°) = \dfrac{y}{x}$

$\Rightarrow y = x \cdot \tan(34°)$

and

$\tan(21°) = \dfrac{y}{(x+110)}$

$\Rightarrow y = \tan(21°)(x+110)$

So we may equate the two values which equal y.

$\Rightarrow \tan(21°)(x+110) = x\tan(34°)$

cont.

pg 5 ans

$$\tan(21^\circ)(X+10) = X\tan(34^\circ)$$

$$\Rightarrow X\cdot\tan(21^\circ) + 10\cdot\tan(21^\circ) = X\cdot\tan(34^\circ)$$

$$\Rightarrow X\tan(21^\circ) - X\tan(34^\circ) = -10\tan(21^\circ)$$

$$\Rightarrow X = \frac{-10\tan(21^\circ)}{(\tan(21^\circ) - \tan(34^\circ))}$$

$$= 18.294151\ldots$$

$$= 18.29$$

Thus: $y = (18.29)\cdot\tan(34^\circ)$

$$= 12.33956\ldots$$

$$= 12.34$$

So

$y = CD = 12.34\text{m}$

$X = BC = 18.29\text{m}$