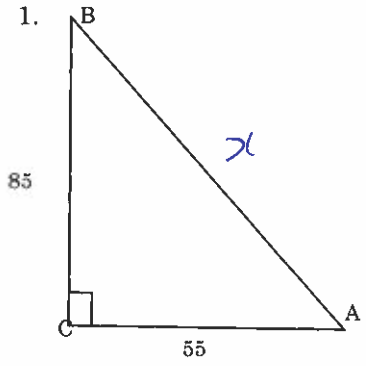
Key

Math 20-2
Trigonometry Worksheet – Review from 10C

Complete each of the following triangles. This means determine the length of each side and the measure of each angle. You can use any trig function you wish, Pythagoras or sum-of-angles-in-a-triangle theorem.

1.



$85^2 + 55^2 = x^2$

$x^2 = 10250$

$x = 101.2$

$\tan A = \frac{85}{55}$

$A = \tan^{-1}(85 \div 55)$

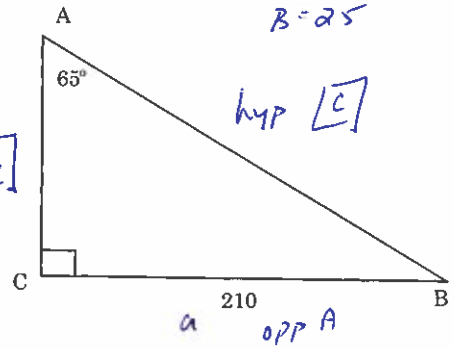
$A = 57$

$180 - 57 - 90$

$B = 33$

AB = 101.2
AC = ____
BC = ____
∠A = 57
∠B = 33

2.



$B = 180 - 90 - 65$

$B = 25$

Ads A [b]

hyp [c]

a opp A

$\sin 65 = \frac{210}{c}$

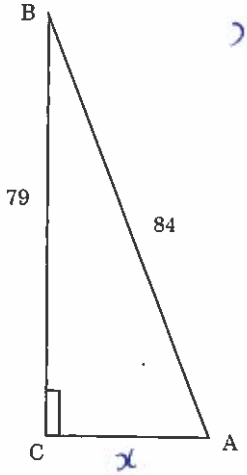
$c = 231.7$

$\tan 65 = \frac{210}{b}$

$b = 97.9$

AB = 231.7
AC = 97.9
BC = ____
∠A = ____
∠B = 25

3.



$x^2 + 79^2 = 84^2$

$x^2 = 815$

$x = 28.5$

$\sin A = \frac{79}{84}$

$A = \sin^{-1}(79 \div 84)$

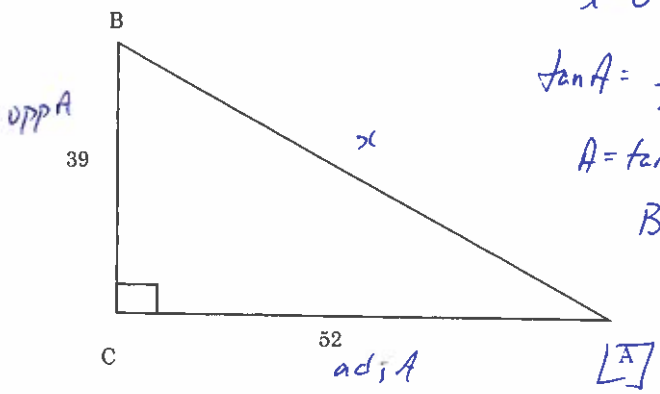
$A = 70$

$B = 180 - 90 - 70$

$B = 20$

AB = ____
AC = 28.5
BC = ____
∠A = 70
∠B = 20

4.



$39^2 + 52^2 = x^2$

$x^2 = 4225$

$x = 65$

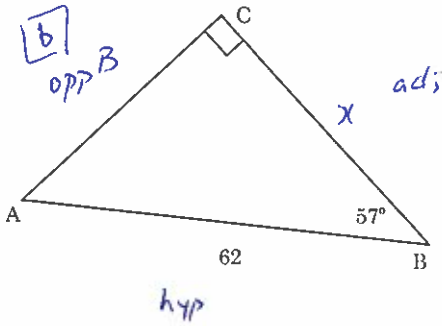
$\tan A = \frac{39}{52}$

$A = \tan^{-1}(39 \div 52) = 37°$

$B = 180 - 90 - 37 = 53$

AB = 65
AC = ____
BC = ____
∠A = 37
∠B = 53

5.



$A = 180 - 90 - 57 = 33$

$\cos 57 = \frac{x}{62}$

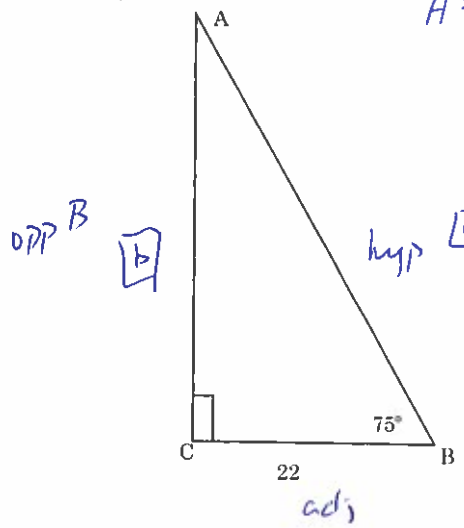
$x = 33.7$

$\sin 57 = \frac{b}{62}$

$b = 52.0$

AB = ____
AC = 52.0
BC = 33.7
∠A = 33
∠B = ____

6.



$A = 180 - 90 - 75 = 15$

$\cos 75 = \frac{22}{c}$

$c = 85.0$

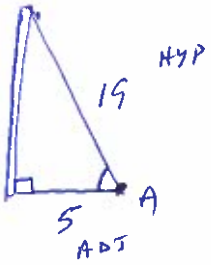
$\tan 75 = \frac{b}{22}$

$b = 82.1$

AB = 85.0
AC = 82.1
BC = ____
∠A = 15
∠B = ____

Word Problems

1. A support cable is anchored to the ground 5 m from the base of a telephone pole. The cable is 19 m long. It is attached near the top of the pole. What angle, to the nearest degree, does the cable make with the ground?

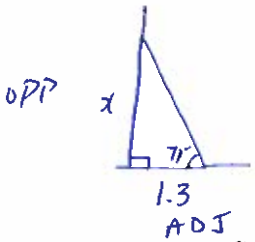


$\cos A = \frac{5}{19}$

$A = \cos^{-1}(5 \div 19)$

$A = 75°$

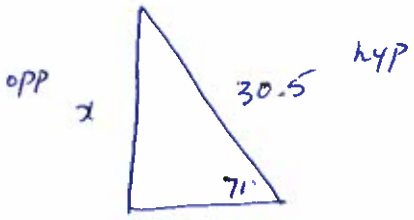
2. The base of a ladder is on the level ground 1.3 m from a wall. The ladder leans against the wall. The angle between the ladder and the ground is 71°. How far up the wall does the ladder reach to the nearest tenth of a metre?



$\tan 71 = \frac{x}{1.3}$

$x = 3.8$

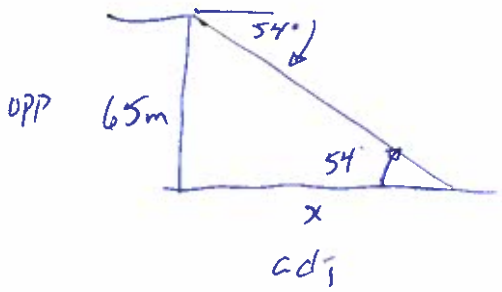
3. A fire truck has an aerial ladder that extends 30.5 m measured from the ground. The angle of inclination of the ladder is 71°. To the nearest tenth of a metre, how far up the wall of apartment building can the ladder reach?



$\sin 71 = \frac{x}{30.5}$

$x = 28.8$

4. From the top of a 65 m cliff, the angle of depression of to a boat in the harbour below is 54°. Determine how far the boat is from the base of the cliff, to the nearest metre.



$\tan 54 = \frac{65}{x}$

$x = 47.2$