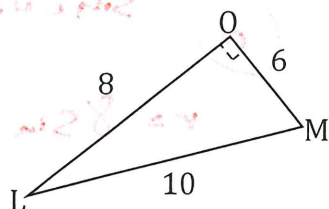Name: _**key**_

## Trigonometry Review Assignment (covers 2.1, 2.2, 2.4, 2.5)

**1.**



**a) Find the length of the side that is:**

The hypotenuse: _**10**_

Adjacent to L: _**8**_

Opposite to L: _**6**_

Opposite to M: _**8**_

**b) Write each required ratio in fraction form and in decimal form (to 3 decimal places where appropriate).**

$\sin L = \dfrac{6}{10} = \dfrac{3}{5} = 0.6$

$\cos L = \dfrac{8}{10} = \dfrac{4}{5} = 0.8$

$\tan L = \dfrac{6}{8} = \dfrac{3}{4} = 0.75$

$\sin M = \dfrac{8}{10} = \dfrac{4}{5} = 0.8$

$\cos M = \dfrac{6}{10} = \dfrac{3}{5} = 0.6$

$\tan M = \dfrac{8}{6} = \dfrac{4}{3} = 1.333$

**2.** Find the required ratio in decimal form (to three decimal places).

a) $\sin 58° = $ _**0.848**_   b) $\cos 13° = $ _**0.974**_   c) $\tan 26° = $ _**0.488**_

**3.** Find the angle (to the nearest tenth of a degree) that would give each ratio.
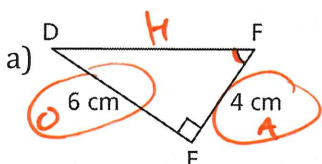
a) $\cos A = 0.4478$

$\angle A = $ _**63.4°**_

b) $\sin P = 0.9996$

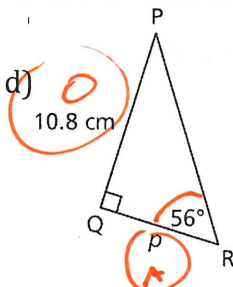$\angle P = $ _**88.4°**_

c) $\tan B = 3.3122$

$\angle B = $ _**73.2°**_

**4.** Find the value of each indicated angle or side. Round answers to the nearest tenth of a unit.
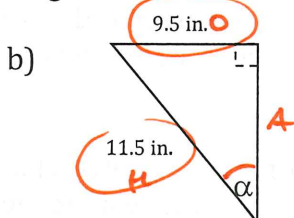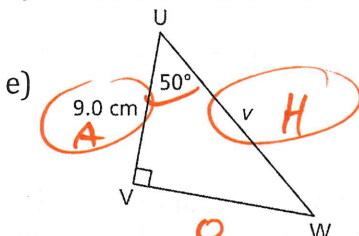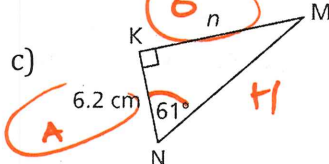
a)



$\tan F = 6/4$

$F = \tan^{-1}(6/4)$

a) _**56.3°**_

b)



$\sin \alpha = 9.5/11.5$

$\alpha = \sin^{-1}(9.5/11.5)$

b) _**55.7°**_

c)



$\tan 61° = \dfrac{n}{6.2}$

$6.2(\tan 61°) = n$

c) _**11.2 cm**_

d)



$\tan 56° = 10.8/p$

$p = \dfrac{10.8}{\tan 56°}$

d) _**7.28 cm**_

e)



$\cos 50° = 9/v$

$v = \dfrac{9}{\cos 50°}$

e) _**14.00 cm**_

f)



$\sin \theta = 4/8$

$\theta = \sin^{-1}(4/8)$

f) _**30°**_

g)



O 2 cm  A  B  H  8 cm  A  C

$\tan G = \frac{2}{8}$

$G = \tan^{-1}(\frac{2}{8})$

h)

S  6  5.3 cm  A  V  27°  S  H  T

$\sin 27 = \frac{5.3}{s}$

$s = \frac{5.3}{\sin 27}$

i)

R  20°  8.0 cm  A  H  S  r  O  T

$\sin 20 = \frac{r}{8}$

$r = 8 \sin 20°$

g)_____ 14.0° _____

h)_____ 11.7 cm _____
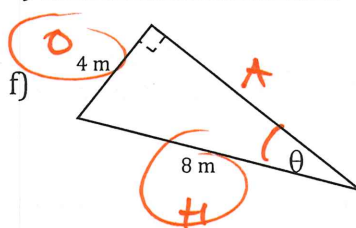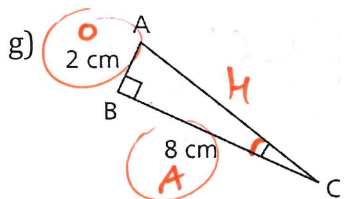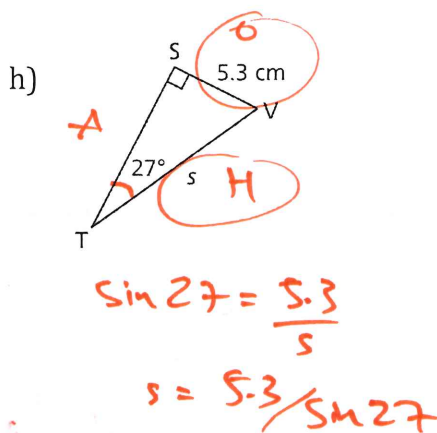
i)_____ 2.7 cm _____

5.    Complete the following problems on a separate piece of paper.

   i)   Sketch a GOOD diagram with all information labelled on it (including missing side/angle).

   ii)  Write the trigonometric ratio you will use.

   iii) Solve for the indicated side/angle.  Show your work.

   iv)  Round to 2 decimal places where appropriate.

   v)   Include units in your answer.

a)  A small plane is flying at an altitude of 1000m and is 500m horizontally from the beginning of the landing strip.  What is the angle between the ground and the line of sight from an observer at the beginning of the landing strip?

b)  A guy wire helps to support a tower.  The angle between the wire and the level ground is 56°.  One end of the wire is 15.4 m from the base of the tower.  How high up the tower does the wire reach?

c)  A factory manager plans to install a 30 ft. long conveyor that rises 7 ft. from the road to the loading dock.  What is the angle of inclination of the conveyor?

d)  A hiker saw a hoodoo on a cliff at Willow Creek in Alberta's badlands.  The hiker was 9.1 m from the base of the cliff.  From that point, the angle between the level ground and the line of sight to the top of the hoodoo was 68°.  About how high was the top of the hoodoo above level ground?

e)  The base of a ladder is on level ground 1.3 m from a wall.  The ladder leans against the wall.  The angle between the ladder and the ground is 70°.  How long is the ladder?

f)  A playground slide starts 107 cm above the ground and is 250 cm long.  What angle does the slide make with the ground?

g)  An airplane approaches an airport.  At a certain time, it is 939 m high.  Its angle of elevation measured from the airport is 19.5°.  How far is the plane from the airport?

h)  A water bomber is flying at an altitude of 5000 ft.  The plane's radar shows that is is 8000 ft. from the target site.  What is the angle of elevation of the plane measured from the target site?

i)  The Pioneer ski lift at Golden, B.C., is 1366 m long.  It rises 522 m vertically.  What is the angle of inclination of the ski lift?

## 5(a)
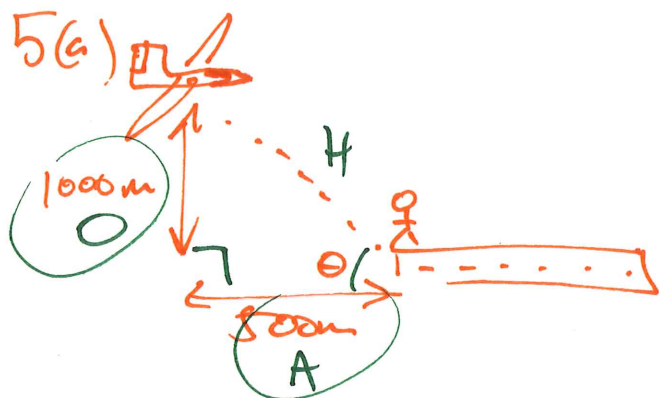


$$\tan \theta = \frac{1000}{500}$$

$$\theta = \tan^{-1}\left(\frac{1000}{500}\right)$$

$$\boxed{\theta = 63.43°}$$

## (b)



$$\tan 56° = \frac{x}{15.4}$$

$$15.4 \tan 56° = x$$

$$\boxed{22.83m = x}$$

## (c)



$$\sin \theta = \frac{7}{30}$$

$$\theta = \sin^{-1}\left(\frac{7}{30}\right)$$

$$\boxed{\theta = 13.49°}$$
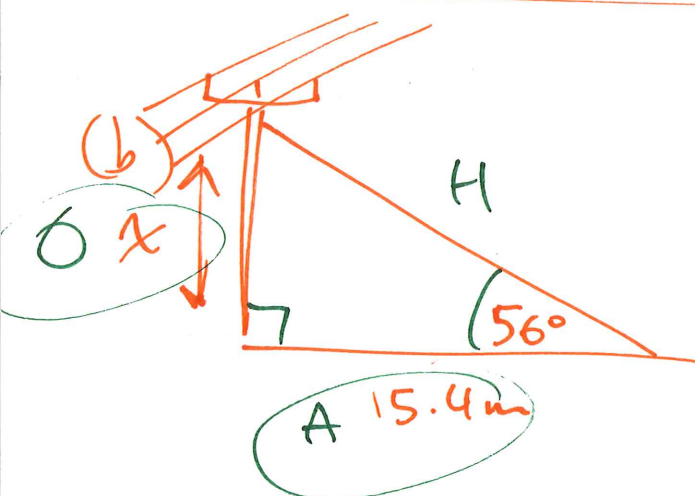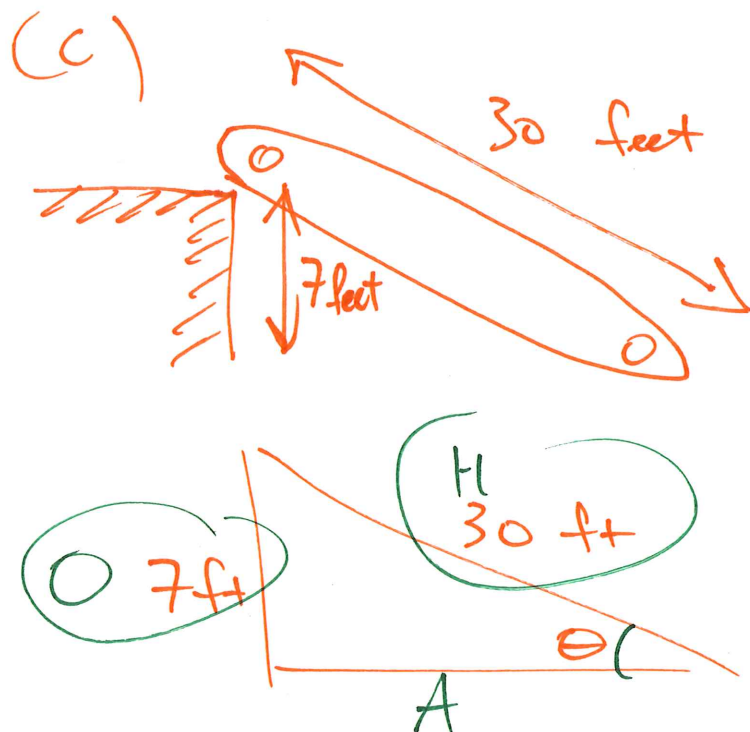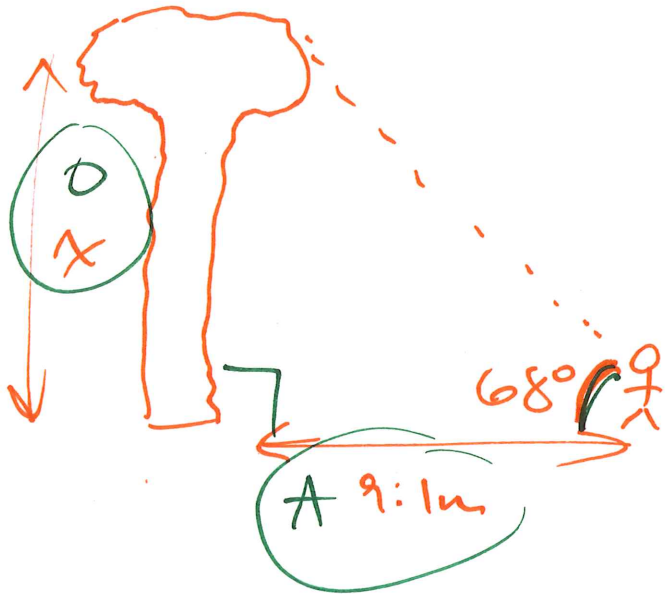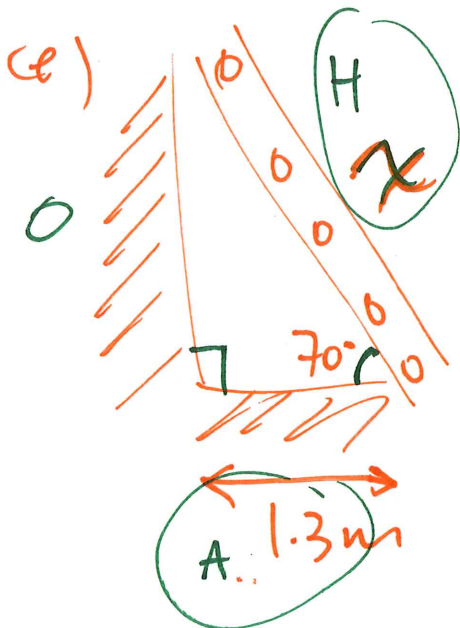
(d)



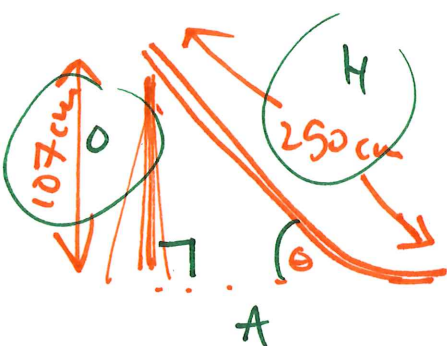$$\tan 68° = \frac{x}{9.1}$$

$$9.1(\tan 68°) = x$$

$$22.52m = x$$

(e)



$$\cos 70° = \frac{1.3}{x}$$

$$x = \frac{1.3}{\cos 70°}$$

$$x = 3.80m$$

(f)



$$\sin \Theta = \frac{107}{250}$$

$$\Theta = \sin^{-1}\left(\frac{107}{250}\right)$$

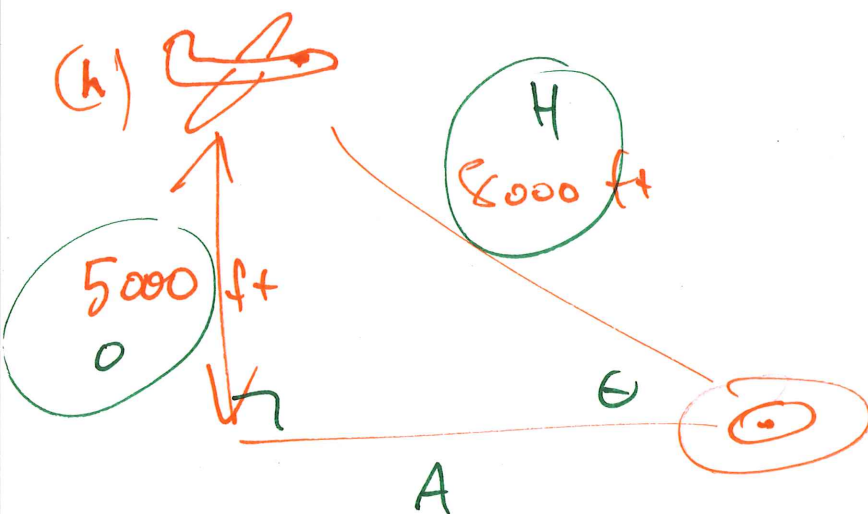$$\Theta = 25.34°$$

2

(g)



O 939 m

H x

19.5° YVR

A
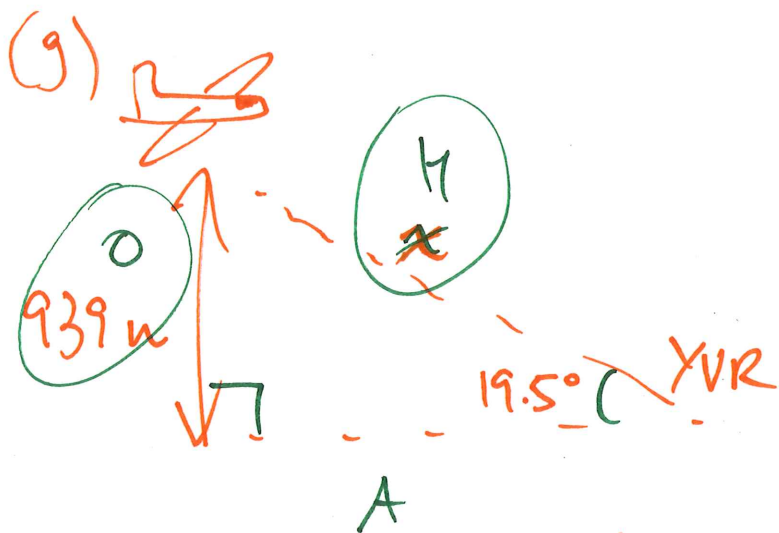
$$\sin 19.5° = \frac{939}{x}$$

$$x = \frac{939}{\sin 19.5°}$$

$$\boxed{x = 2813.00 m}$$

(h)



5000 ft
O

H 8000 ft

θ

A

$$\sin θ = \frac{5000}{8000}$$

$$θ = \sin^{-1}\left(\frac{5000}{8000}\right)$$

$$\boxed{θ = 38.68°}$$

(i)



O 522 m

H 1366 m

θ

A

$$\sin θ = \frac{522}{1366}$$

$$θ = \sin^{-1}\left(\frac{522}{1366}\right)$$

$$\boxed{θ = 22.47°}$$

5