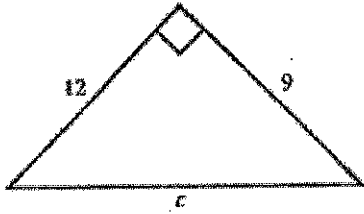


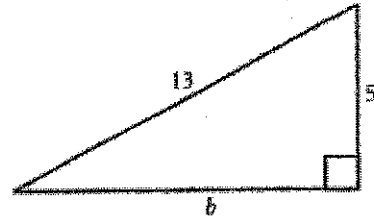
Trigonometry Test Review

1. Solve for x (Hint: Use $a^2 + b^2 = c^2$)



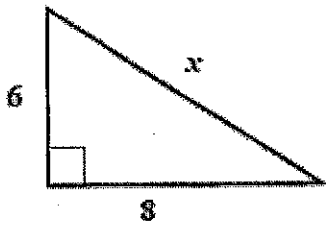
$$12^2 + 9^2 = c^2$$

$$c = 15$$



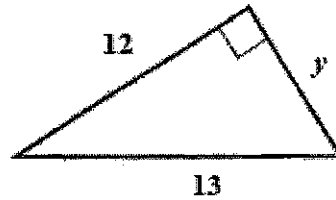
$$5^2 + b^2 = 13^2$$

$$b = 12$$



$$6^2 + 8^2 = x^2$$

$$x = 10$$

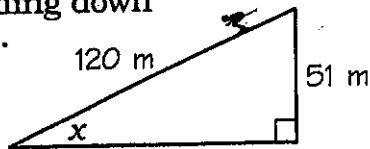


$$12^2 + y^2 = 13^2$$

$$y = 5$$

2. Solve each word problem:

An Olympic ski jumper drops 51 m vertically while skiing down a 120-meter ramp. What is the angle of elevation of the ramp?



$$\theta = x$$

$$\theta = 51 \text{ m}$$
~~$$A =$$~~

$$H = 120 \text{ m}$$

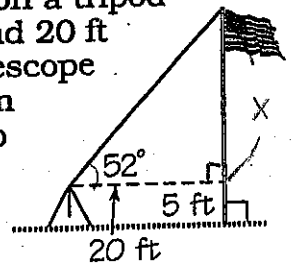
$$\sin \theta = \frac{51}{120}$$

$$\theta = \sin^{-1} \frac{51}{120}$$

$$= 25.15$$

$$\underline{\underline{x = 25^\circ}}$$

A telescope is mounted on a tripod 5 ft above the ground and 20 ft from a flagpole. The telescope must be rotated 52° from horizontal to see the top of the flagpole. How tall is the flagpole?



$$\theta = 52^\circ$$

$$\theta = x$$

$$A = 20 \text{ ft}$$
~~$$H =$$~~

$$\tan 52 = \frac{x}{20}$$

$$20 \tan 52 = x$$

$$x = 26$$

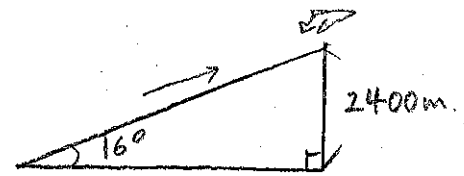
$$26 + 5 = 31$$

$$\underline{\underline{31 \text{ ft}}}$$

3. An airplane climbs at an angle of 16° . In how many meters diagonally must it travel to reach a height of 2400m?

$\theta = 16^\circ$
 $O = 2400\text{m}$
~~A~~
 $H = X$

$\sin 16 = \frac{2400}{X}$
 $X = \frac{2400}{\sin 16}$
 $= 8707.09$

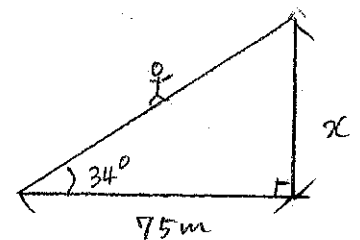


8707 m

4. A hiker is walking in a valley and sees an elk on the top of a cliff at an angle of elevation of 34° . How high is the cliff if the hiker is 75 m from the base of the cliff?

$\theta = 34^\circ$
 $O = X$
 $A = 75\text{m}$
~~H~~

$\tan 34 = \frac{X}{75}$
 $75 \tan 34 = X$
 $X = 50.58$

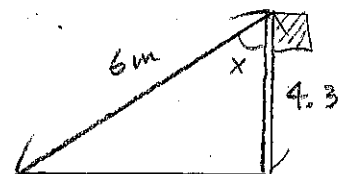


51 m

5. A 6 m support wire is attached to a flag pole that is 4.3 m tall. What is the angle between the support wire and flag pole?

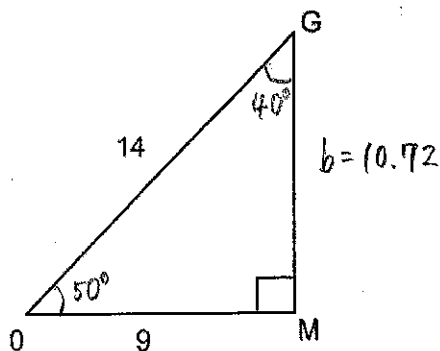
$\theta = X$
 $O = 4.3\text{m}$
~~A~~
 $H = 6\text{m}$

$\sin X = \frac{4.3}{6}$
 $X = \sin^{-1} \frac{4.3}{6}$
 $= 45.77$
 ≈ 46



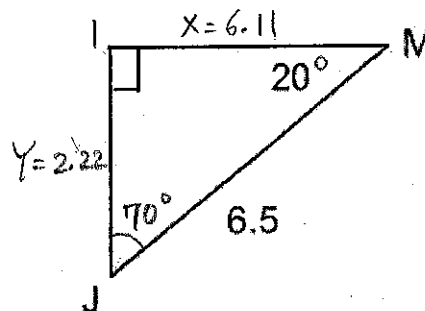
$X = 46^\circ$

6. Solve the triangle.



$GM: 9^2 + b^2 = 14^2$
 $b = 10.72$
 $\angle O: \cos \theta = \frac{9}{14}$
 $\theta = \cos^{-1} \frac{9}{14}$
 $= 50$

$\angle G: 90 - 50 = 40$
 $\angle G = 40^\circ$

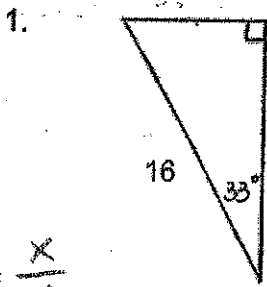


$\angle J: 90^\circ - 20^\circ = 70^\circ$
 $MI: \cos 20 = \frac{X}{6.5}$
 $X = 6.5 \cos 20$
 $= 6.108$
 ≈ 6.11

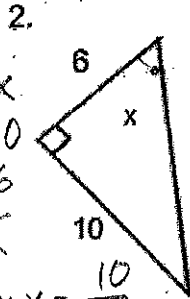
$IJ: \tan 20 = \frac{Y}{6.11}$
 $6.11 \tan 20 = Y$
 $Y = 2.22$

Find Missing Side or Angle

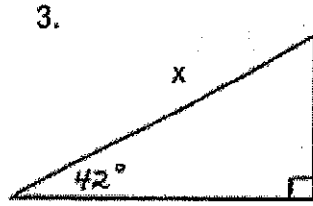
Try: Solve for "x"



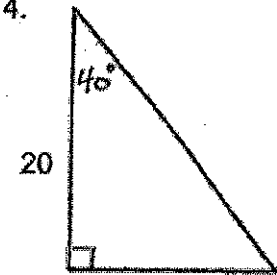
$\theta = 33^\circ$
~~O = X~~
~~A = 16~~
~~H = 16~~
 $\cos 33 = \frac{x}{16}$
 $x = 16 \cos 33$
 $= 13.42$



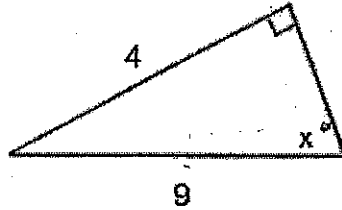
$\theta = x$
~~O = 10~~
~~A = 6~~
~~H = 10~~
 $\tan x = \frac{6}{10}$
 $x = \tan^{-1} \frac{6}{10}$
 $= 31^\circ$



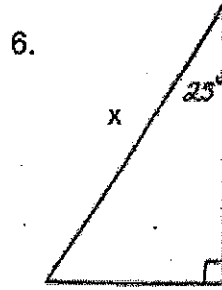
$\theta = 42$
~~O = 16~~
~~A = x~~
~~H = x~~
 $\sin 42 = \frac{16}{x}$
 $x = \frac{16}{\sin 42}$
 $= 23.91$



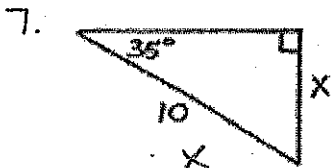
$\theta = 40$
~~O = x~~
~~A = 20~~
~~H = 20~~
 $\tan 40 = \frac{x}{20}$
 $x = 20 \tan 40$
 $= 16.78$



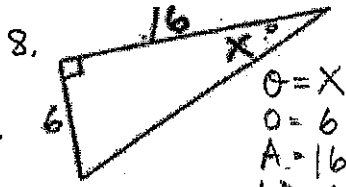
$\theta = x$
~~O = 4~~
~~A = 9~~
~~H = 9~~
 $\sin x = \frac{4}{9}$
 $x = \sin^{-1} \frac{4}{9}$
 $= 26$
 $x = 26^\circ$



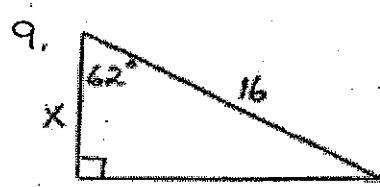
$\theta = 25$
~~O = 18~~
~~A = x~~
~~H = x~~
 $\cos 25 = \frac{18}{x}$
 $x = \frac{18}{\cos 25}$
 $x = 19.86$



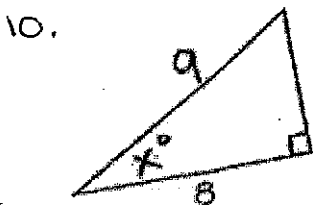
$\theta = 35$
~~O = x~~
~~A = 10~~
~~H = 10~~
 $\sin 35 = \frac{x}{10}$
 $10 \sin 35 = x$
 $x = 5.74$



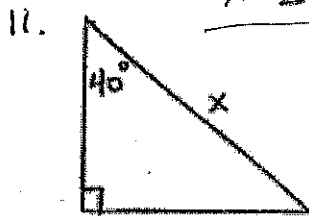
$\theta = x$
~~O = 6~~
~~A = 16~~
~~H = 16~~
 $\tan x = \frac{6}{16}$
 $x = \tan^{-1} \frac{6}{16}$
 $= 20.55$
 $x = 21^\circ$



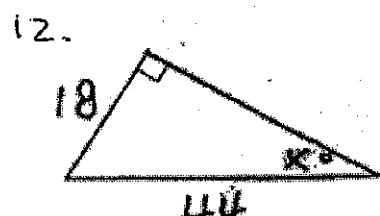
$\theta = 62$
~~O = x~~
~~A = 16~~
~~H = 16~~
 $\cos 62 = \frac{x}{16}$
 $16 \cos 62 = x$
 $x = 7.51$



$\theta = x$
~~O = 8~~
~~A = 9~~
~~H = 9~~
 $\cos x = \frac{8}{9}$
 $x = \cos^{-1} \frac{8}{9}$
 $= 27.26$
 $x = 27^\circ$



$\theta = 40^\circ$
~~O = 7~~
~~A = x~~
~~H = x~~
 $\sin 40 = \frac{7}{x}$
 $x = \frac{7}{\sin 40}$
 $= 10.89$



$\theta = x$
~~O = 18~~
~~A = 44~~
~~H = 44~~
 $\sin x = \frac{18}{44}$
 $x = \sin^{-1} \frac{18}{44}$
 $= 24$
 $x = 24^\circ$