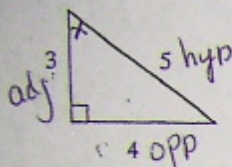


1. Use the diagram to find $\cos x$ as a fraction in lowest terms.



$$\cos \theta = \frac{a}{h}$$

$$= \frac{3}{5}$$

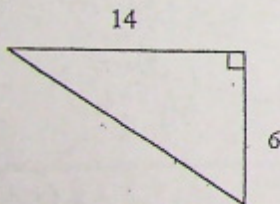
a) $\frac{3}{4}$

b) $\frac{4}{5}$

c) $\frac{3}{5}$

d) $1 \frac{1}{3}$

2. Find the length of the hypotenuse.



$$a^2 + b^2 = c^2$$

$$6^2 + 14^2 = c^2$$

$$36 + 196 = c^2$$

$$\sqrt{232} = \sqrt{c^2} \quad c = 15.2$$

a) 15

b) 13

c) 20

d) 4

3. If $\cos T = 0.4226$, what is the value of angle T?

a) 25

b) 23

c) 56

d) 65

4. In triangle ABC, angle A is the right angle and angle B = 60° . If the side AB = 20m, find the length of side BC.

a) 10

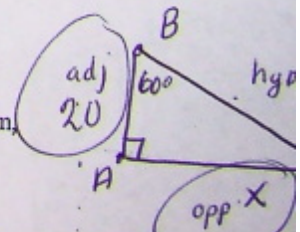
b) 40

c) 17.3

d) 34.6

$$\tan \theta = \frac{o}{a}$$

$$\tan 60^\circ = \frac{x}{20}$$



a) 25 b) 23 c) 56 d) 65

4. In triangle ABC, angle A is the right angle and angle B = 60°. If the side AB = 20m find the length of side BC.

a) 10 b) 40 c) 17.3 d) 34.6

5. A photographer shines a camera light at a particular painting forming an angle of 41° with the camera platform. If the light is 55m from the wall where the painting hangs, how high above the platform is the painting?

a) 1.15m b) 47.81m c) 0.87m d) 63.27m

6. From the top of a lighthouse, a sailboat is sighted at an angle of depression of 38°. If the lighthouse is 44.0 m high, how far is the vessel from the base of the lighthouse?

a) 47.0 m b) 56.0 m c) 67.0 m d) 71.0 m

7. A forest ranger in a tower 128.0 m high sights two fires in the same line of sight with the angles of depression 61° and 25°. How far apart are the fires?

a) 203.5 m b) 71.0 m c) 274.5 m d) 110.3 m

8. The face of a cliff rises vertically to a height of 112.0 m. A sighting is made from a boat to the top of the cliff. The angle of elevation is read as 22°. How far is the boat from the base of the cliff?

a) 299.0 m b) 45.3 m c) 277.2 m d) 120.8 m

9. Using the measurements given, calculate the height of the other tree.

$x = 277.2$

$\tan 48^\circ = \frac{12.4}{x}$

$\tan 22^\circ = \frac{112}{x}$

$0.4040 x = \frac{112}{x}$

$x = 277.2$

$\tan 41^\circ = \frac{x}{55}$

$0.8693 = \frac{x}{55}$

$x = 47.8$

$\tan 38^\circ = \frac{44}{x}$

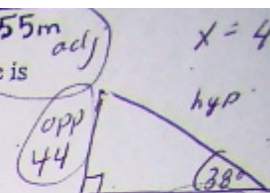
$0.7813 = \frac{44}{x}$

$x = 56.3$

- a) 1.15m **b) 47.81m** c) 0.87m d) 63.27m

6. From the top of a lighthouse, a sailboat is sighted at an angle of depression of 38° . If the lighthouse is 44.0 m high, how far is the vessel from the base of the lighthouse?

- a) 47.0 m **b) 56.0 m** c) 67.0 m d) 71.0 m



7. A forest ranger in a tower 128.0 m high sights two fires in the same line of sight with the angles of depression 61° and 25° . How far apart are the fires?

- a) 203.5 m** b) 71.0 m c) 274.5 m d) 110.3 m

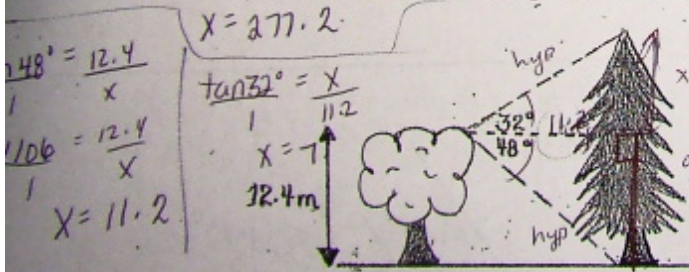
$\tan \theta = \frac{opp}{adj}$
 $\tan 38^\circ = \frac{44}{x}$

8. The face of a cliff rises vertically to a height of 112.0 m. A sighting is made from a boat to the top of the cliff. The angle of elevation is read as 22° . How far is the boat from the base of the cliff?

- a) 299.0 m b) 45.3 m **c) 277.2 m** d) 120.8 m

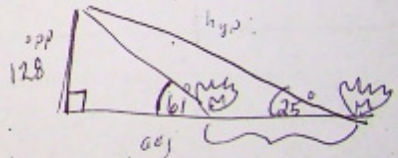
$\frac{0.7813}{1} = \frac{44}{x}$
 $x = 56.3$

9. Using the measurements given, calculate the height of the other tree.



$\tan 48^\circ = \frac{12.4}{x}$
 $\frac{1.06}{1} = \frac{12.4}{x}$
 $x = 11.2$

$\tan 32^\circ = \frac{x}{11.2}$
 $x = 7$
 $11.2 + 7 = 18.4m$



$\tan 61^\circ = \frac{128}{x}$
 $1.8040x = 128$
 $x = 71.0$

$\tan 25^\circ = \frac{128}{x}$
 $0.4663 = \frac{128}{x}$
 $x = 274.4$
 $274.4 - 71 = 203.50$

- a) 7.3 m **b) 19.7 m** c) 36.9 m

Which of the following are Pythagorean triplets?

a) 4, 3, 5 $4^2 + 3^2 = 5^2$ $16 + 9 = 25$ $25 = 25$ **NO**

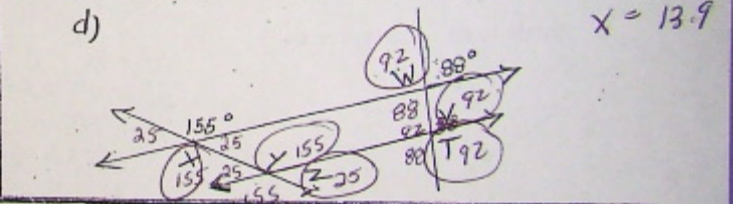
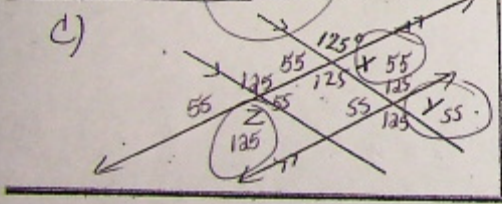
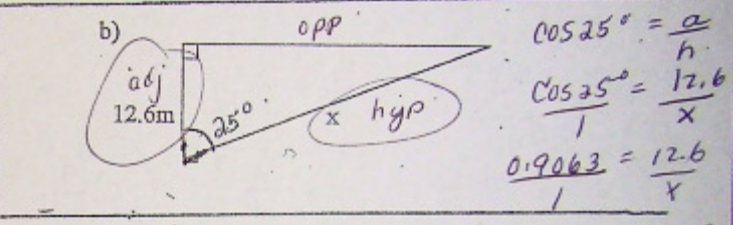
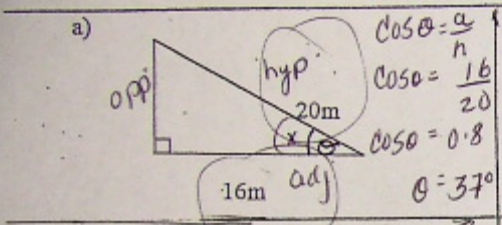
b) 4, 9, 13 $4^2 + 9^2 = 13^2$ $16 + 81 = 169$ $97 = 169$ **X**

c) 6, 8, 10 $6^2 + 8^2 = 10^2$ $36 + 64 = 100$ $100 = 100$ **yes**

d) 9, 12, 15 $9^2 + 12^2 = 15^2$ $81 + 144 = 225$ $100 = 100$ **yes**

e) 12, 15, 16 $12^2 + 15^2 = 16^2$ $144 + 225 = 25$ **NO**

f) 1, 6, 9 $1^2 + 6^2 = 9^2$ $1 + 36 = 81$ **NO**



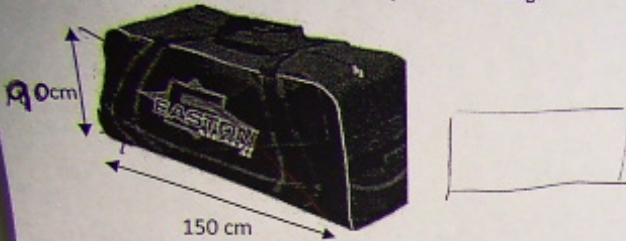
Jack bought a new hockey stick that was 180cm in length. His hockey bag measures 150 cm by 90cm. Will Jack be able to put his new hockey stick in his bag?



3. Find x

$120 + 2x + 2 = 180$
 $2x + 122 = 180 - 122$
 $\frac{2x}{2} = \frac{58}{2}$
 $x = 29^\circ$

Jack bought a new hockey stick that was 180cm in length. His hockey bag measures 150 cm by 90cm. Will Jack be able to put his new hockey stick in his bag?



$$90^2 + 150^2 = c^2$$

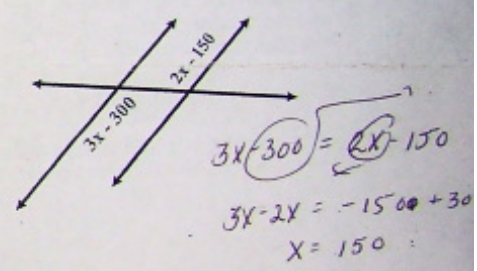
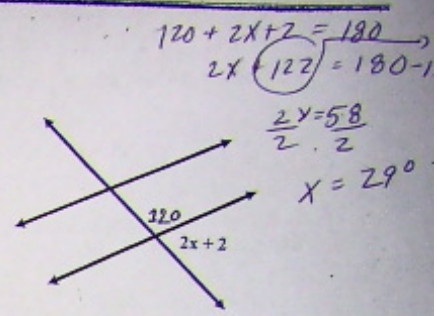
$$8100 + 22500 = c^2$$

$$\sqrt{30600} = c$$

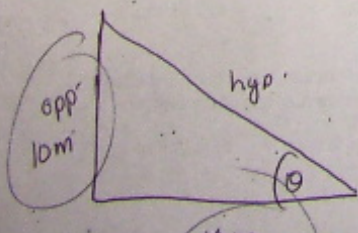
$$c = 174.9$$

No too long

3. Find x



Ryan and Eldon are having a shouting match. Ryan is on top of the school, which is 10m tall. Eldon is 10m away from the school. Calculate the angle of elevation from Eldon to Ryan.



$$\tan \theta = \frac{10}{10}$$

$$\tan \theta = 1$$

$$\theta = 45^\circ$$

$$8100 + 22500 = c^2$$

$$\sqrt{30600} = c$$

$$c = 174.9$$

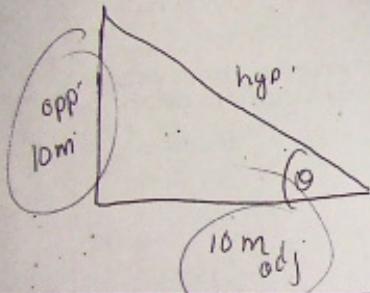
No trig
← tang.

$$3x + 300 = 2x$$

$$3x - 2x = -15$$

$$x = 150$$

Ryan and Eldon are having a shouting match. Ryan is on top of the school, which is 10m tall. Eldon is 10m away from the school. Calculate the angle of elevation from Eldon to Ryan.



$$\tan \theta = \frac{10}{10}$$

$$\tan \theta = 1$$

$$\theta = 45^\circ$$

State Alternate Interior, Alternate Exterior, Corresponding, or Co-Interior

