Your name: Answers

Thursday June 2, 2022

MPM2D Unit 6 Test A	TOTAL / 30

Pythagorean Theorem: $a^2 + b^2 = c^2$

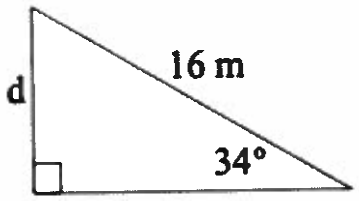
SOH CAH TOA: $\sin\theta = \frac{opp}{hyp}$ $\cos\theta = \frac{adj}{hyp}$ $\tan\theta = \frac{opp}{adj}$

Sine Law: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Cosine Law: $c^2 = a^2 + b^2 - 2ab\cos C$ $\cos C = \frac{a^2+b^2-c^2}{2ab}$

1. Calculate the unknown length *or* angle in each triangle.

a) [3A]

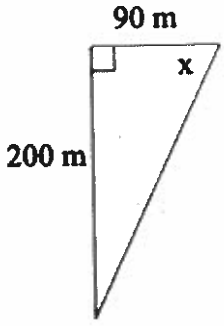


$\sin 34° = \frac{d}{16}$

$d = 16 \times \sin 34°$

$d = 8.95$ m

b) [3A]

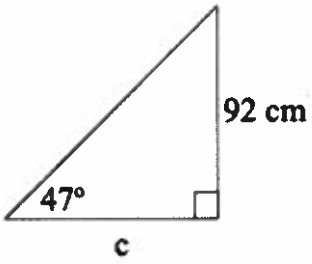


$\tan x = \frac{200}{90}$

$x = \tan^{-1}\left(\frac{200}{90}\right)$

$x = 65.77°$

c) [3 A]

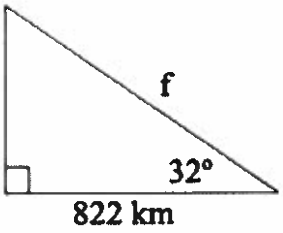


$$\tan 47° = \frac{92}{c}$$

$$c = \frac{92}{\tan 47°}$$

$$c = 85.79 \text{ cm}$$

d) [3 A]



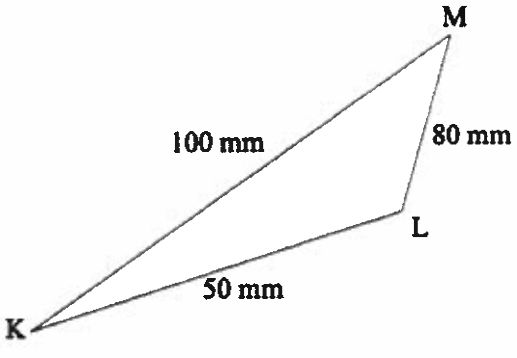
$$\cos 32° = \frac{822}{f}$$

$$f = \frac{822}{\cos 32°}$$

$$f = 969.28 \text{ km}$$

2. Calculate the specified length or angle in each triangle.

a) Solve for angle L [3 T]

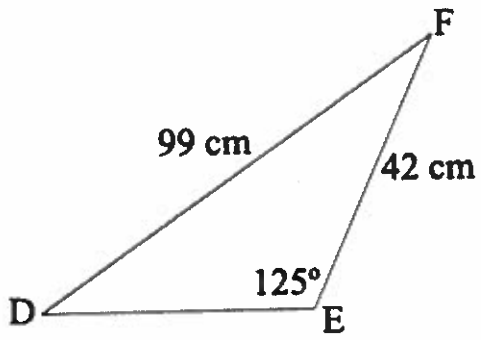


$$\cos L = \frac{80^2 + 50^2 - 100^2}{2(80)(50)}$$

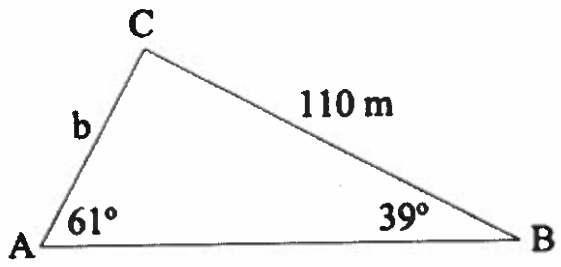
$$L = \cos^{-1}\left(\frac{-1100}{8000}\right)$$

$$L = 97.90°$$

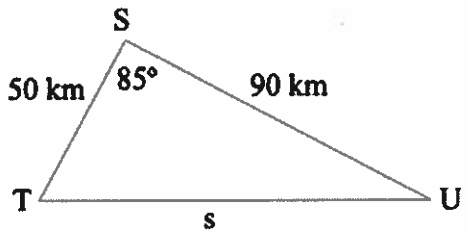
b) Solve for angle D [3 T]



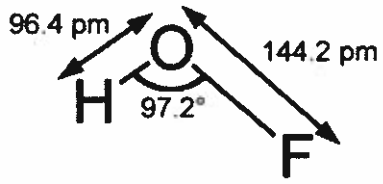
c) Solve for side length *b*. [3 T]



d) Solve for side length *s* [3 T]

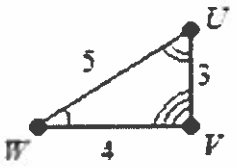


3. Below is a molecule of hypofluorous acid.
The H and the O are separated by a distance of 96.4 pm ("picometers").
The F and the O are separated by a distance of 144.2 pm.
The bond angle at O is 97.2°.
How far apart at the H and F? Round your answer to the nearest tenth. [2 A]



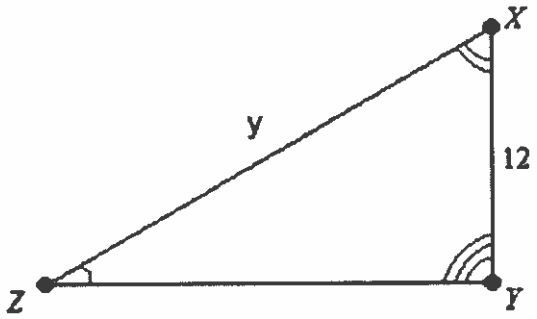
4. This is a pair of similar triangles. [4 A]

a) Write a similarity statement.



b) What is the scale factor?

c) What is the length of y ? (No units needed)



d) If the area of the smaller triangle is 6 units^2, what is the area of the larger triangle?