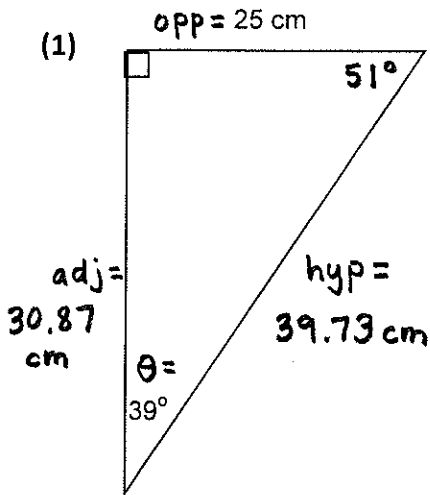


Right Triangle Trig Problems: (18 points) NAME KEY

- For each triangle, solve for all the missing sides and angles.
- All angles are in degrees.
- Make sure you use the degree symbol, appropriate units, and round to the nearest 100th.
- Show work to the right side. Write the answers in the appropriate location on each triangle:



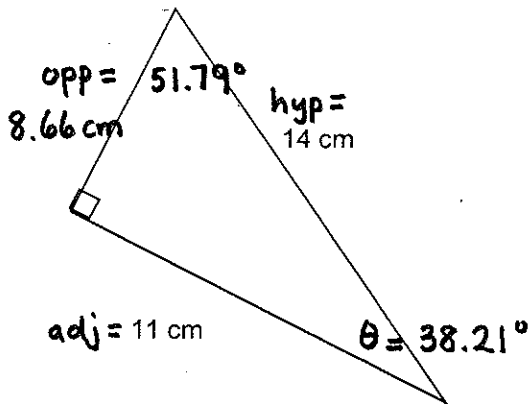
WORK:

$$90^\circ - 39^\circ = 51^\circ$$

$$\tan 39^\circ = \frac{25}{\text{adj}} \rightarrow \text{adj} = \frac{25}{\tan 39^\circ} \approx 30.87 \text{ cm}$$

$$\sin 39^\circ = \frac{25}{\text{hyp}} \rightarrow \text{hyp} = \frac{25}{\sin 39^\circ} \approx 39.73 \text{ cm}$$

(2)

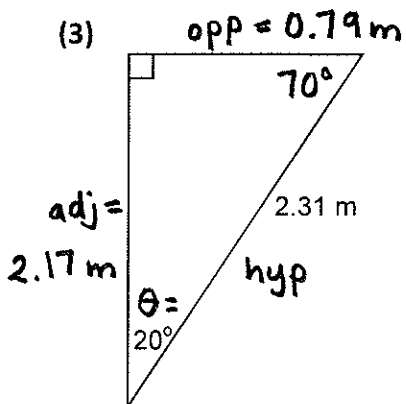


$$\cos \theta = \frac{11}{14} \rightarrow \theta = \cos^{-1}\left(\frac{11}{14}\right) \approx 38.21^\circ$$

$$90^\circ - 38.21^\circ = 51.79^\circ$$

$$\text{opp}^2 + 11^2 = 14^2 \rightarrow \text{opp}^2 + 121 = 196 \rightarrow \text{opp}^2 = 75 \rightarrow \text{opp} \approx 8.66 \text{ cm}$$

(3)

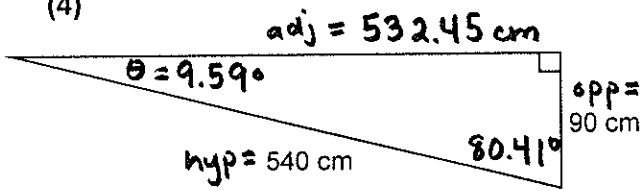


$$90^\circ - 20^\circ = 70^\circ$$

$$\sin 20^\circ = \frac{\text{opp}}{2.31} \rightarrow \text{opp} = 2.31 \sin 20^\circ \approx 0.79 \text{ m}$$

$$\cos 20^\circ = \frac{\text{adj}}{2.31} \rightarrow \text{adj} = 2.31 \cos 20^\circ \approx 2.17 \text{ m}$$

(4)



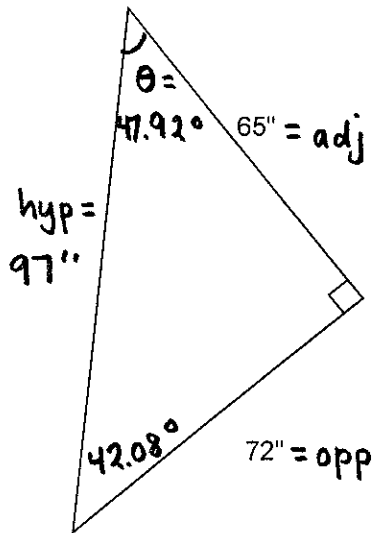
$$\sin \theta = \frac{90}{540} \rightarrow \sin^{-1} \left(\frac{90}{540} \right) = \theta$$

$$\theta \approx 9.59^\circ \quad 90^\circ - 9.59^\circ = 80.41^\circ$$

$$\text{adj}^2 + 90^2 = 540^2 \rightarrow \text{adj}^2 + 8100 = 291,600 \rightarrow$$

$$\text{adj}^2 = 283,500 \rightarrow \text{adj} \approx 532.45$$

(5)

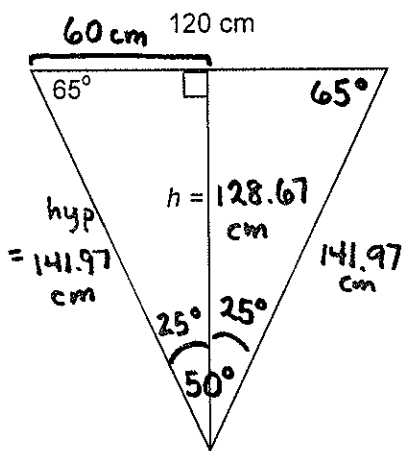


$$\tan \theta = \frac{72}{65} \rightarrow \tan^{-1} \left(\frac{72}{65} \right) = \theta$$

$$\theta \approx 47.92^\circ \quad 90^\circ - 47.92^\circ = 42.08^\circ$$

$$65^2 + 72^2 = \text{hyp}^2 \rightarrow \text{hyp}^2 = 9409 \rightarrow \text{hyp} = 97$$

(6)



$$180^\circ - (65^\circ + 65^\circ) = 50^\circ$$

$$\tan 65^\circ = \frac{h}{60} \rightarrow h = 60 \tan 65^\circ \approx 128.67 \text{ cm}$$

$$\cos 65^\circ = \frac{60}{\text{hyp}} \rightarrow \text{hyp} = \frac{60}{\cos 65^\circ} \approx 141.97 \text{ cm}$$

This is an **isosceles** triangle. Also find h , the height ↗

2 sides & 2 angles the same