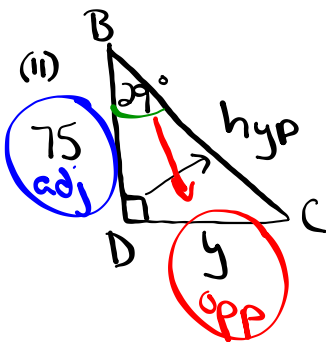


$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 51^\circ = \frac{x}{75}$$

$$75 \cdot 1.2349 = \frac{x}{75} \cdot 75$$

$$\underline{\underline{92.6}} = x$$



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 29^\circ = \frac{y}{75}$$

$$75 \cdot 0.5543 = \frac{y}{75} \cdot 75$$

$$\underline{\underline{41.6}} = y$$

③ $z = x + y$

$$z = 92.6 + 41.6$$

$$\boxed{z = 134.2}$$

$$b) \quad \tan 33^\circ = \frac{58}{x}$$

$$\cancel{x} \cdot 0.6494 = \frac{58}{\cancel{x}} \cdot \cancel{x}$$

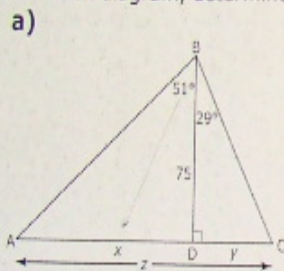
$$\cancel{0.6494}x = \frac{58}{\cancel{0.6494}}$$

$$x = 89.3$$

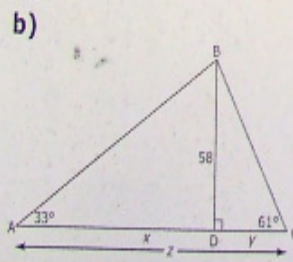
Name: _____ Date: _____

Trigonometry Extra Practice

1. For each diagram, determine the lengths of x , y , and z to the nearest whole unit.

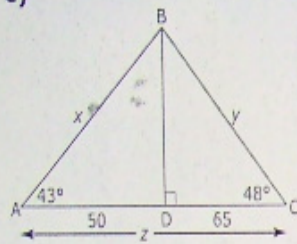


$$\begin{aligned} \text{(i)} \quad \tan 51^\circ &= \frac{x}{75} & \text{(ii)} \quad \tan 29^\circ &= \frac{y}{75} \\ 1.3349 &= \frac{x}{75} & 0.5543 &= \frac{y}{75} \\ x &= 92.6 & y &= 41.6 \\ \text{(iii)} \quad z &= 92.6 + 41.6 = 134.2 \end{aligned}$$



$$\begin{aligned} \text{(i)} \quad \tan 33^\circ &= \frac{58}{x} & \text{(ii)} \quad \tan 61^\circ &= \frac{58}{y} \\ 0.6494 &= \frac{58}{x} & 1.8040 &= \frac{58}{y} \\ 0.6494x &= 58 & 1.8040y &= 58 \\ x &= 89.3 & y &= 32.2 \\ \text{(iii)} \quad z &= 89.3 + 32.2 = 121.5 \end{aligned}$$

c)



$$(i) \cos 43^\circ = \frac{50}{x}$$

$$0.7314 = \frac{50}{x}$$

$$0.7314x = 50$$

$$x = 68.4$$

$$(ii) \cos 48^\circ = \frac{65}{y}$$

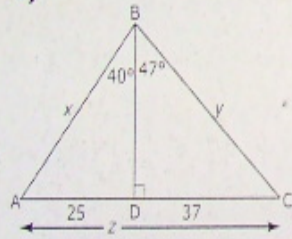
$$0.6691 = \frac{65}{y}$$

$$0.6691y = 65$$

$$y = 97.1$$

$$(iii) z = 50 + 65 = 115$$

d)



$$(i) \sin 40^\circ = \frac{25}{x}$$

$$0.6428 = \frac{25}{x}$$

$$0.6428x = 25$$

$$x = 38.9$$

$$(ii) \sin 47^\circ = \frac{37}{y}$$

$$0.7314 = \frac{37}{y}$$

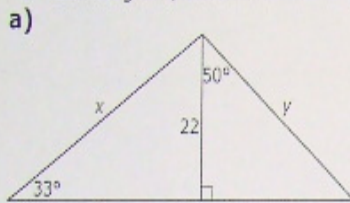
$$0.7314y = 37$$

$$y = 50.6$$

$$(iii) z = 25 + 37 = 62$$

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2. For each diagram, determine the lengths of sides x and y to the nearest whole unit.



$$\textcircled{1} \sin 33^\circ = \frac{22}{x}$$

$$0.5446 = \frac{22}{x}$$

$$0.5446x = 22$$

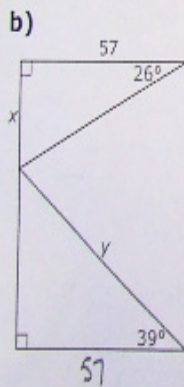
$$\boxed{x = 40.4}$$

$$\textcircled{2} \cos 50^\circ = \frac{22}{y}$$

$$0.6428 = \frac{22}{y}$$

$$0.6428y = 22$$

$$\boxed{y = 34.2}$$



$$\textcircled{1} \tan 26^\circ = \frac{x}{57}$$

$$0.4871 = \frac{x}{57}$$

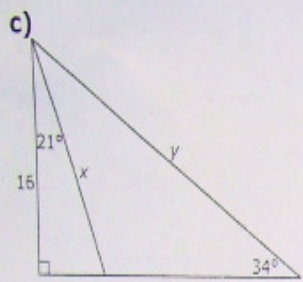
$$\boxed{x = 27.8}$$

$$\textcircled{2} \cos 39^\circ = \frac{57}{y}$$

$$0.7771 = \frac{57}{y}$$

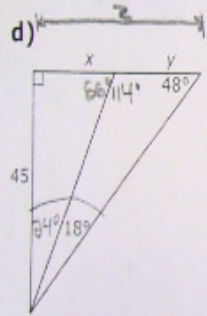
$$0.7771y = 57$$

$$\boxed{y = 73.3}$$



$$\begin{aligned} (1) \cos 21^\circ &= \frac{16}{x} \\ 0.9336 &= \frac{16}{x} \\ 0.9336x &= 16 \\ \boxed{x = 17.1} \end{aligned}$$

$$\begin{aligned} (1) \sin 34^\circ &= \frac{16}{y} \\ 0.5592 &= \frac{16}{y} \\ 0.5592y &= 16 \\ \boxed{y = 28.6} \end{aligned}$$



$$\begin{aligned} (1) \tan 21^\circ &= \frac{x}{45} \\ 0.4452 &= \frac{x}{45} \\ \boxed{x = 20} \end{aligned}$$

$$\begin{aligned} (1) \tan 48^\circ &= \frac{z}{45} \\ 0.9004 &= \frac{z}{45} \\ z &= 40.5 \end{aligned}$$

$$\begin{aligned} 180^\circ - 18^\circ - 48^\circ &= 114 \\ 180^\circ - 114^\circ &= 66^\circ \\ 180^\circ - 90^\circ - 66^\circ &= 24^\circ \end{aligned}$$

$$\begin{aligned} \therefore y &= z - x \\ y &= 40.5 - 20 \\ \boxed{y = 20.5} \end{aligned}$$