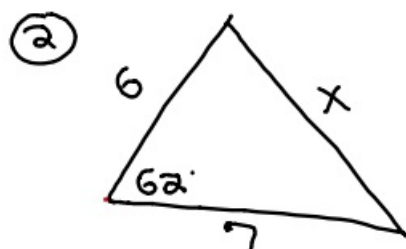
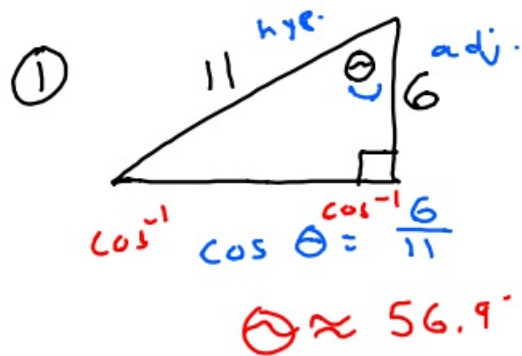


2-21-20 15th Trig



$$c^2 = a^2 + b^2 - 2ab \cdot \cos \theta$$

$$c^2 = 7^2 + 6^2 - 2 \cdot 7 \cdot 6 \cdot \cos 62^\circ$$

$$\sqrt{c^2} \approx \sqrt{45}$$

$$c \approx 6.8$$

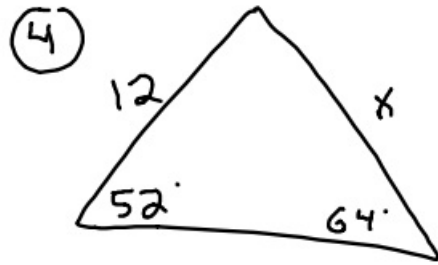
- ③ A 24 ft. ladder is placed against a house at a 70° angle with the ground. How high up the house is it?



$$\frac{\sin 70^\circ}{1} = \frac{x}{24}$$

$$x = 24 \cdot \sin 70^\circ$$

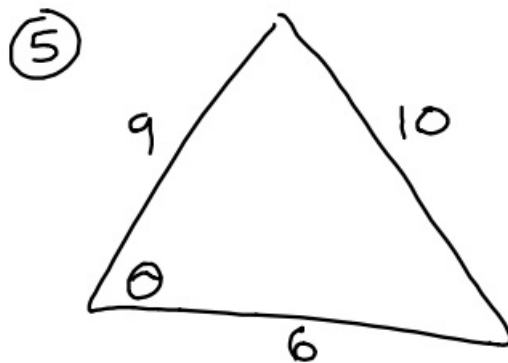
$$x \approx 22.6$$



$$\frac{\sin 52^\circ}{x} = \frac{\sin 64^\circ}{12}$$

$$\frac{x \cdot \sin 64^\circ}{\sin 64^\circ} = \frac{12 \cdot \sin 52^\circ}{\sin 64^\circ}$$

$$x \approx 10.5$$



$$c^2 = a^2 + b^2 - 2 \cdot a \cdot b \cdot \cos \theta$$

$$10^2 = 6^2 + 9^2 - 2 \cdot 6 \cdot 9 \cdot \cos \theta$$

$$100 = 36 + 81 - 108 \cdot \cos \theta$$

$$100 = 117 - 108 \cdot \cos \theta$$

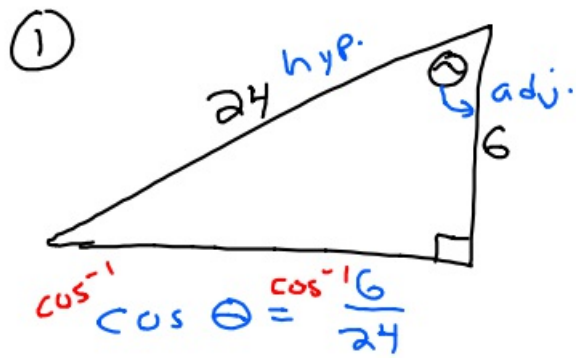
$$\frac{-117 - 117}{-108} = \frac{-108 \cdot \cos \theta}{-108}$$

$$\frac{-17}{-108} = \frac{-108 \cdot \cos \theta}{-108}$$

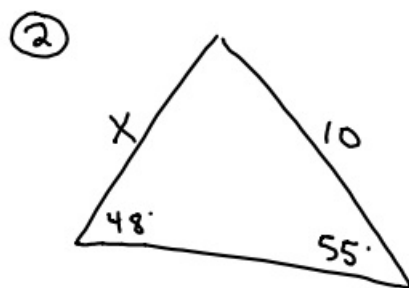
$$\cos^{-1} \cos \theta = \cos^{-1} \frac{17}{108}$$

$$\theta \approx 80.9^\circ$$

2-21-20 3rd Trig



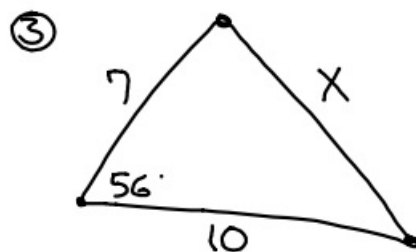
$$\theta \approx 75.5^\circ$$



$$\frac{\sin 48^\circ}{10} = \frac{\sin 55^\circ}{X}$$

$$\frac{X \cdot \sin 48^\circ}{\sin 48^\circ} = \frac{10 \cdot \sin 55^\circ}{\sin 48^\circ}$$

$$X \approx 11.0$$



$$c^2 = a^2 + b^2 - 2ab \cdot \cos \theta$$

$$c^2 = 10^2 + 7^2 - 2 \cdot 10 \cdot 7 \cdot \cos 56^\circ$$

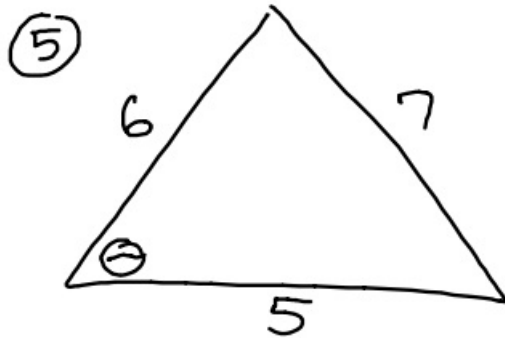
$$\sqrt{c^2} = \sqrt{70.7 \dots}$$

$$c \approx 8.4$$

- ④ A ladder is placed at a 70° angle with the ground. How far up a building will my 20 foot ladder go?



$$\frac{\sin 70^\circ}{1} = \frac{X}{20}$$
$$X = 20 \cdot \sin 70^\circ$$
$$X \approx 18.8$$



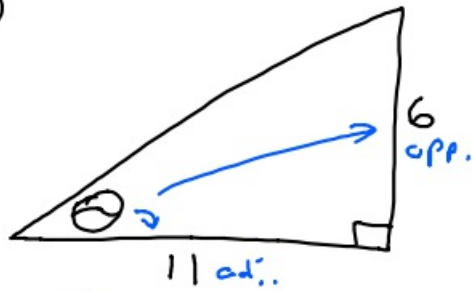
$$c^2 = a^2 + b^2 - 2ab \cos \theta$$
$$7^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos \theta$$
$$49 = 25 + 36 - 60 \cdot \cos \theta$$
$$49 = 61 - 60 \cdot \cos \theta$$
$$-61 = -61$$

$$\frac{-12}{-60} = \frac{-60 \cdot \cos \theta}{-60}$$
$$\cos^{-1} \cos \theta = \cos^{-1} \frac{12}{60}$$

$$\theta \approx 78.5^\circ$$

2-21-20 4th Trig

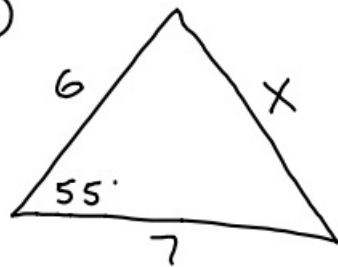
①



$$\tan^{-1} \tan \theta = \frac{6}{11}$$

$$\theta \approx 28.6^\circ$$

②



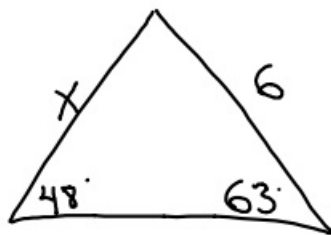
$$c^2 = a^2 + b^2 - 2ab \cos \theta$$

$$x^2 = 7^2 + 6^2 - 2 \cdot 7 \cdot 6 \cdot \cos 55^\circ$$

$$\sqrt{x^2} \approx \sqrt{36.8 \dots}$$

$$x \approx 6.1$$

③



$$\frac{\sin 48^\circ}{6} = \frac{\sin 63^\circ}{x}$$

$$\frac{x \cdot \cancel{\sin 48^\circ}}{\cancel{\sin 48^\circ}} = \frac{6 \cdot \sin 63^\circ}{\sin 48^\circ}$$

$$x = 7.2$$

- ④ I put my 32 foot ladder at a 70° angle with the ground against a building. How high up does it reach?

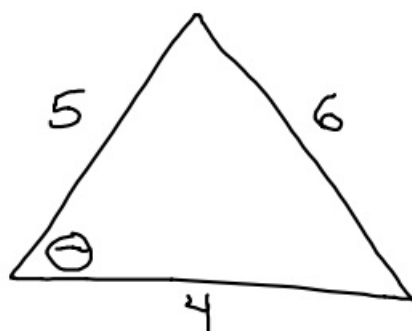


$$\frac{\sin 70^\circ}{1} = \frac{x}{32}$$

$$x = 32 \cdot \sin 70^\circ$$

$$x \approx 30.1$$

⑤



$$c^2 = a^2 + b^2 - 2ab \cos \theta$$

$$6^2 = 4^2 + 5^2 - 2 \cdot 4 \cdot 5 \cdot \cos \theta$$

$$36 = 16 + 25 - 40 \cdot \cos \theta$$

$$\begin{array}{r} 36 = 41 - 40 \cdot \cos \theta \\ -41 \quad -41 \end{array}$$

$$\frac{-5}{-40} = \frac{-40 \cdot \cos \theta}{-40}$$

$$\cos^{-1} \frac{5}{40} = \cos^{-1} \cos \theta$$

$$\theta \approx 82.8^\circ$$