

EX:

EXAMPLE 3

Use a trigonometric ratio to find a hypotenuse

DOG RUN

You want to string cable to make a dog run from two corners of a building, as shown in the diagram. Write and solve a proportion using a trigonometric ratio to approximate the length of cable you will need.



$$\sin \theta = \frac{O}{H}$$

$$\sin 35 = \frac{11}{x}$$

$$x \cdot \sin 35 = \frac{11}{x} \cdot x$$

$$\frac{x \cdot \cancel{\sin 35}}{\cancel{\sin 35}} = \frac{11}{\cancel{\sin 35}}$$

$$x = 19.2$$

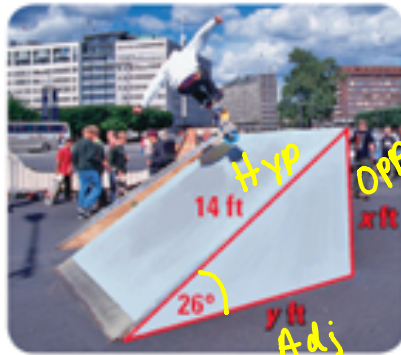
EX:

EXAMPLE 5

Find leg lengths using an angle of elevation

SKATEBOARD RAMP

You want to build a skateboard ramp with a length of 14 feet and an angle of elevation of 26° . You need to find the height and length of the base of the ramp.



$$\frac{y}{14} = \frac{A}{H}$$

$$\cos 26 = \frac{y}{14}$$

$$14 \cdot \cos 26 = \frac{y}{14} \cdot 14$$

$$14 \cdot \cos 26 = y$$

$$\boxed{12.6 = y}$$

$$\frac{x}{14} = \frac{O}{H}$$

$$\sin 26 = \frac{x}{14}$$

$$14 \cdot \sin 26 = \frac{x}{14} \cdot 14$$

$$14 \cdot \sin 26 = x$$

$$\boxed{6.1 = x}$$