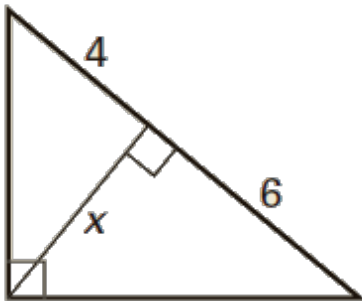


Warm Up

Find the value of x .

1.

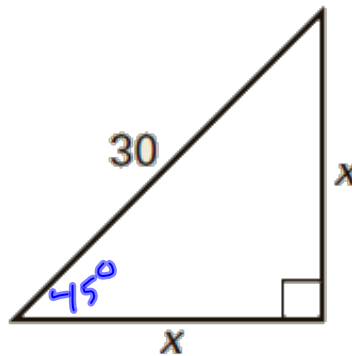


$$\frac{4}{x} = \frac{x}{6}$$

$$x^2 = 24$$

$$x = \sqrt{24} = 2\sqrt{6}$$

2.



~~$30\sqrt{2}$~~

$$x \cdot \sqrt{2} = \frac{30}{\sqrt{2}}$$

$$x = \frac{30}{\sqrt{2}} = \frac{30\sqrt{2}}{2}$$

$15\sqrt{2}$

7-5 TANGENT

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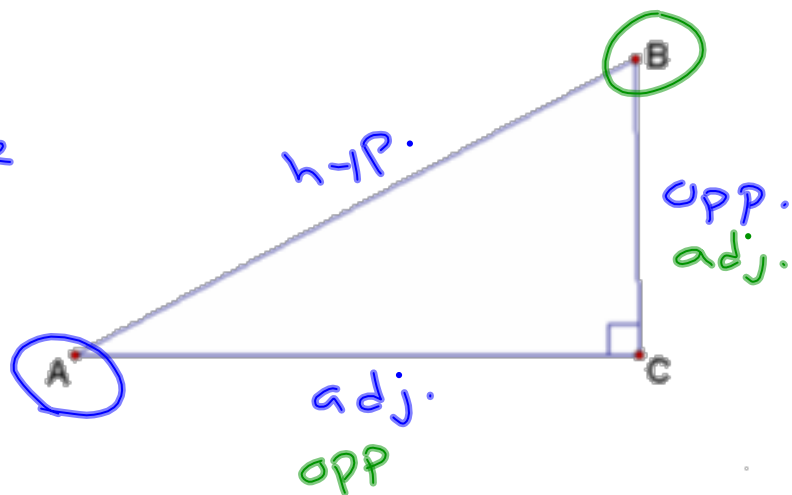
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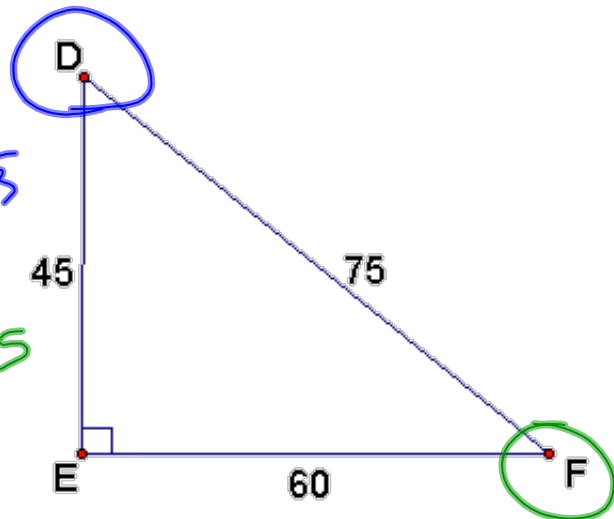
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Ex 1 Find the following:

$$\tan D \quad \frac{60}{45} = \frac{4}{3} = 1.\bar{3}$$

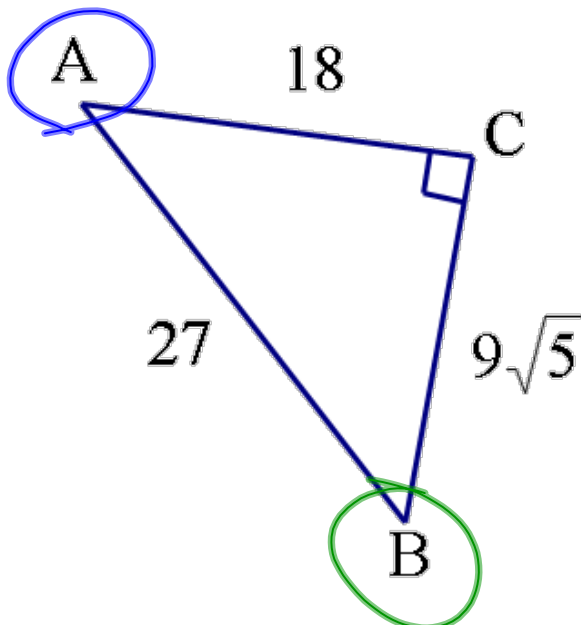
$$\tan F \quad \frac{45}{60} = \frac{3}{4} = .75$$



Ex 2 Find the following:

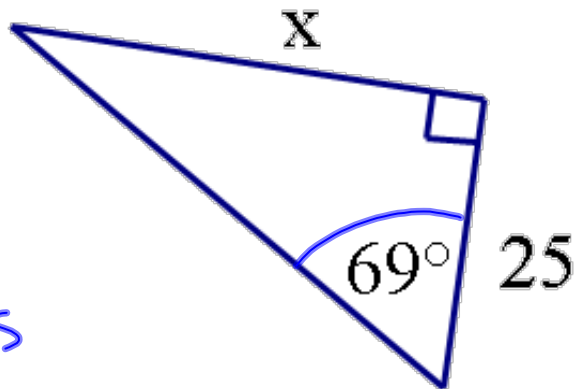
$$\tan A \quad \frac{9\sqrt{5}}{18} = \frac{\sqrt{5}}{2}$$

$$\begin{aligned} \tan B \quad \frac{18}{9\sqrt{5}} &= \frac{2}{\sqrt{5}} \\ &= \frac{2\sqrt{5}}{5} \end{aligned}$$

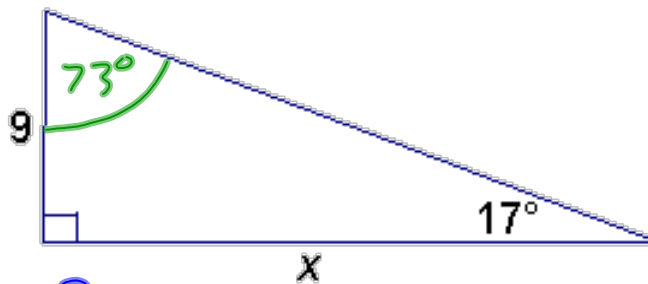


Ex 3 Find the value of x

$$\begin{aligned} \tan 69^\circ &= \frac{x}{25} \\ 25 \cdot 2.6 &= \frac{x}{25} \cdot 25 \\ x &\approx 65.1 \end{aligned}$$



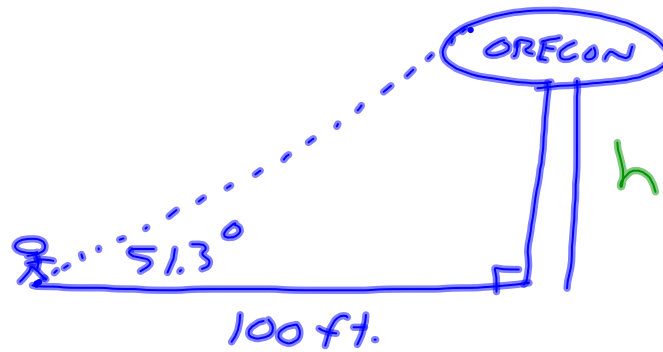
Ex 4 Find the value of x



$$\begin{aligned} x \cdot \tan 17^\circ &= \frac{9}{x} \cdot x \\ x &= \frac{9}{\tan 17^\circ} \\ x &\approx 29.4 \end{aligned}$$

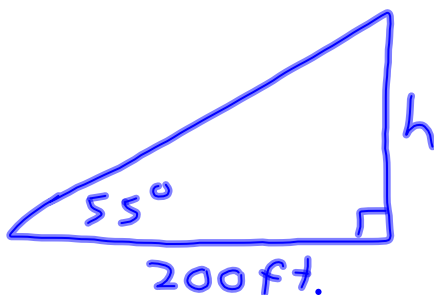
$$\begin{aligned} \tan 73^\circ &= \frac{x}{9} \\ x &\approx 29.4 \end{aligned}$$

- Ex 5 From 100 feet away, the angle of elevation to the tip of the water tower in downtown Oregon is 51.3 degrees. How high is the water tower?



$$\tan 51.3 = \frac{h}{100}$$
$$h \approx 124.8 \text{ ft.}$$

- Ex 6 Standing in the line at Six Flags you look up the at roller coaster at a 55° angle. You are standing only 200 ft from the first big drop. How tall is the peak right before the drop of roller coaster?



$$\tan 55^\circ = \frac{h}{200}$$
$$h \approx 285.6 \text{ ft.}$$