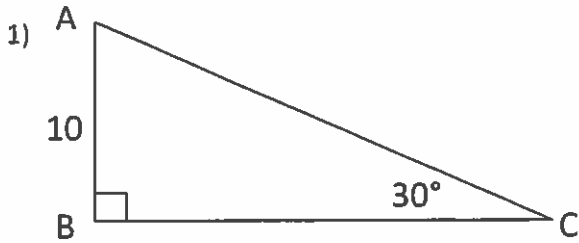
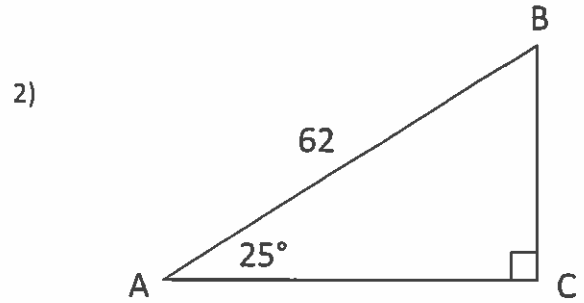


For all problems, round decimals (sides and angles) to nearest tenths (one decimal).
Find all missing sides and angles.

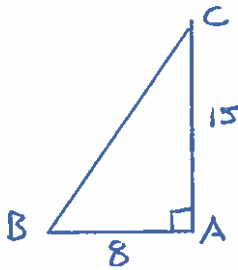


a = 17.3 b = 20 $\angle A =$ 60°



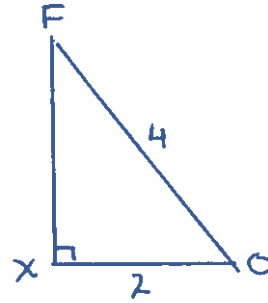
a = 26.2 b = 56.2 $\angle B =$ 65°

3) In $\triangle ABC$, $\angle A = 90^\circ$, $b = 15$ and $c = 8$



a = 17 $\angle B =$ 61.9° $\angle C =$ 28.1°

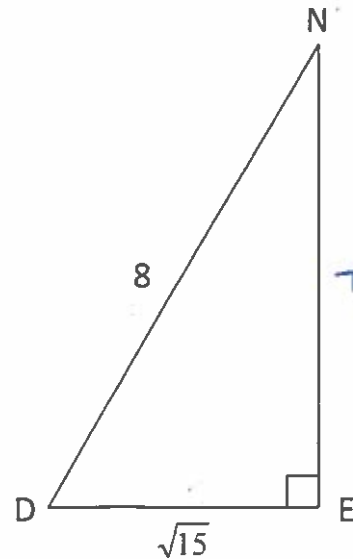
4) In $\triangle FOX$, $\angle X = 90^\circ$, $f = 2$ and $x = 4$



o = 3.5 $\angle F =$ 30° $\angle O =$ 60°

Use $\triangle NED$ to the right to find the fraction equivalent for the following trig functions.

5) $\sin N = \frac{\sqrt{15}}{8}$	6) $\cos D = \frac{\sqrt{15}}{8}$
7) $\tan N = \frac{\sqrt{15}}{7}$	8) $\tan D = \frac{7\sqrt{15}}{15}$
9) $\sec D = \frac{8\sqrt{15}}{15}$	10) $\csc N = \frac{8}{7}$
11) $\cot N = \frac{7\sqrt{15}}{15}$	12) $\sec N = \frac{8\sqrt{15}}{15}$



$\frac{8\sqrt{15}}{15}$

Find the area of each $\triangle ABC$.

13) $a = 8, b = 11$ and $\angle C = 60^\circ$

$$K = \frac{1}{2} \cdot 8 \cdot 11 \cdot \sin 60^\circ$$

$$K = 38.1$$

14) $b = 16, c = 20$ and $\angle A = 32^\circ$

$$K = \frac{1}{2} \cdot 16 \cdot 20 \cdot \sin 32^\circ$$

$$K = 84.8$$

15) $a = 5\text{cm}, c = 3\text{cm}, \angle A = 100^\circ, \angle C = 55^\circ$

$$K = \frac{1}{2} \cdot 5 \cdot 3 \cdot \sin 25^\circ$$

$$K = 3.2 \text{ cm}^2$$

16) $a = 191\text{yds}, c = 49\text{yds}, \angle B = 18^\circ$

$$K = \frac{1}{2} \cdot 191 \cdot 49 \sin 18^\circ$$

$$K = 1446.0 \text{ yds}^2$$

Given the area of $\triangle FAT$, find all possible measures for the angle.

17) $K = 44.4\text{mm}^2, f = 18\text{mm}$ and $t = 5\text{mm}$

Find $\angle A$

$$44.4 = \frac{1}{2} \cdot 18 \cdot 5 \sin \theta$$

$$44.4 = 45 \sin \theta$$

$$\sin^{-1}\left(\frac{44.4}{45}\right) = \theta$$

$$\theta = 80.6^\circ$$

$$\text{OR } 99.4^\circ$$

18) $K = 2256\text{mi}^2, a = 60.2\text{mi}$ and $t = 45.75\text{mi}$

Find $\angle F$

$$2256 = \frac{1}{2} \cdot 60.2 \cdot 45.75 \sin \theta$$

$$2256 = 1377.075 \sin \theta$$

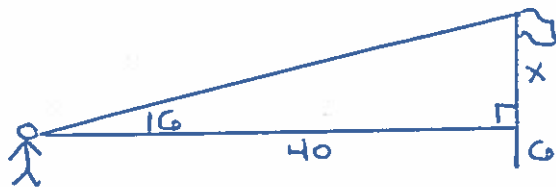
$$\sin^{-1}\left(\frac{2256}{1377.075}\right) = \theta$$

$$\theta = 65.8^\circ$$

$$\text{OR } 114.2^\circ$$

Solve the following word problems. Make a drawing for each, then choose the correct trig function to solve.

- 19) A person is standing 40 feet from the base of a flag pole. The angle at which they must look up to see the top of the pole is 16 degrees. If the height of the person is 6 feet tall, what is the approximate height of the flag pole?



$$\tan 16 = \frac{x}{40}$$

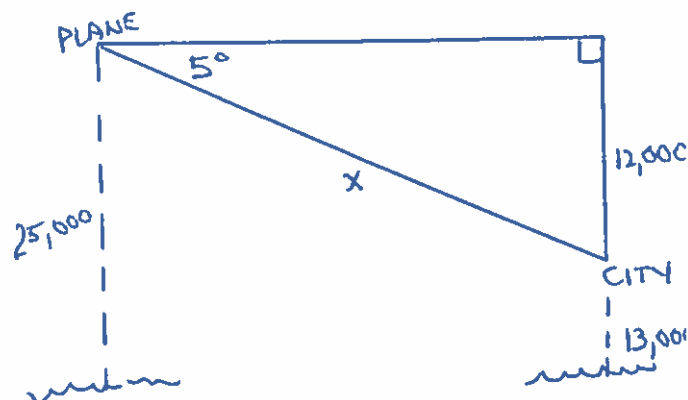
$$40 \tan 16 = x$$

$$11.5 = x$$

+ 6 (HEIGHT OF PERSON)

$$17.5'$$

- 20) A plane is currently flying at an altitude of 25,000 feet above sea level. If the plane is about to begin its descent at 5° , how far is the plane from its destination if the city in which it lands is 13,000 feet above sea level?



$$\sin 5^\circ = \frac{12,000}{x}$$

$$x = \frac{12,000}{\sin 5}$$

$$x = 137,684.6'$$