

Right Triangle Trigonometry Exit Ticket

1. $\sin(15^\circ) = \cos(x)$ (assuming $0^\circ \leq x \leq 90^\circ$)

- a. 45°
- b. 75°**
- c. 60°
- d. 30°

$\sin(15^\circ) = \cos(90^\circ - 15^\circ)$
 $= \cos(75^\circ)$

Remember cosine is the sine of the complement
 So $\sin(x) = \cos(90-x)$ and $\cos(x) = \sin(90-x)$

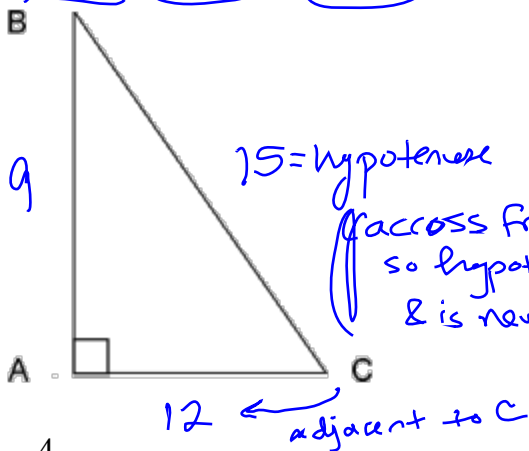
2. If $0^\circ \leq a \leq 180^\circ$, and $\sin(a) = \cos(a)$, then a is equal to which of the following?

- a. 60°
- b. 150°
- c. 45°**
- d. 0°
- e. 90°

If $\sin(a) = \cos(a)$, then

$$\begin{aligned} a &= 90 - a \\ +a & \quad +a \\ \hline 2a &= 90 \\ a &= 45^\circ \end{aligned}$$

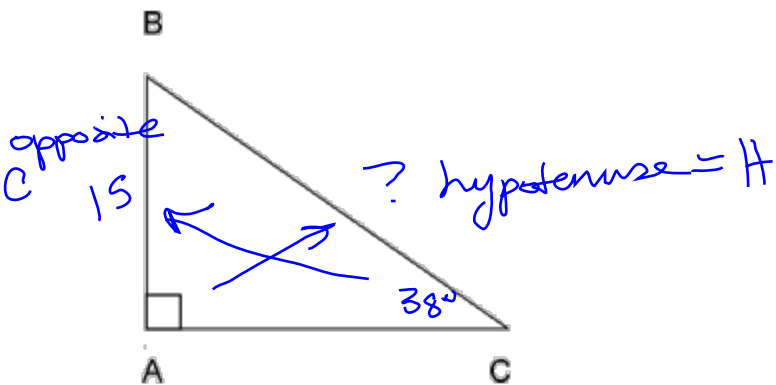
3. If AC is 12, AB is 9, and BC is 15, then what is $\cos(C)$?



$$\begin{aligned} \cos(C) &= \frac{\text{adjacent to } C}{\text{hypotenuse}} \\ &= \frac{12}{15} = \frac{\cancel{3} \cdot 4}{\cancel{3} \cdot 5} = \frac{4}{5} \end{aligned}$$

- a. $\frac{4}{3}$
- b. $\frac{4}{5}$**
- c. $\frac{3}{5}$
- d. $\frac{3}{4}$

4. If side $AB = 15$ and $\angle C = 38^\circ$, what is the length of BC ?



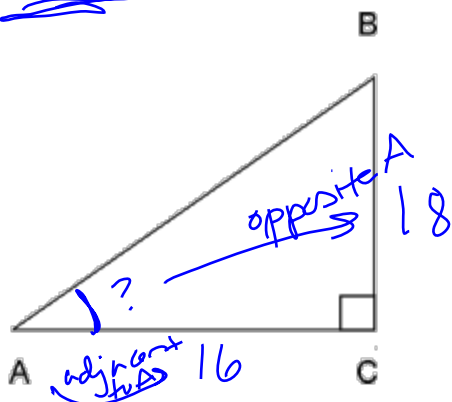
$$\frac{\text{opposite}}{\text{hypotenuse}} = \sin C$$

$$\frac{H \cdot \sin(38^\circ)}{H} = \frac{\sin(38^\circ) \cdot H}{\sin(38^\circ)}$$

$$\frac{15}{\sin(38^\circ)} = H \approx 24.364$$

- a. 24.4
b. 19.2
c. 9.2
d. 19.0

5. If $AC = 16$, $BC = 18$, what is the measure of angle A?



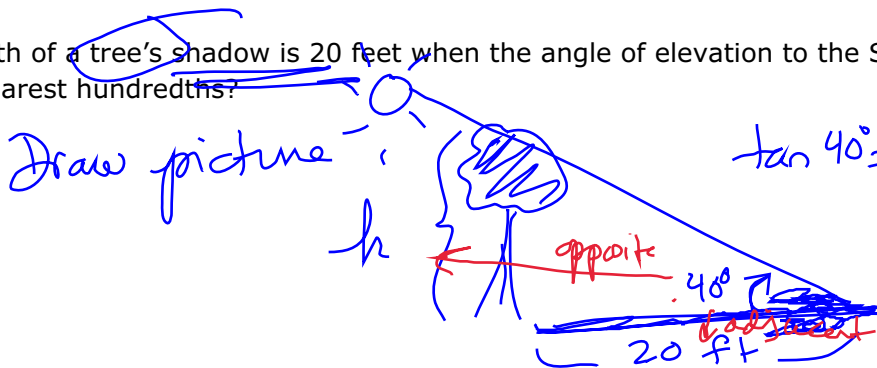
$$\frac{\text{opp}}{\text{adj}} = \tan A$$

$$\frac{9}{8} \frac{18}{16} = \tan A$$

$$\tan^{-1}\left(\frac{9}{8}\right) \approx 48.366$$

- a. 48.4°
b. 41.6°
c. 27.3°
d. 62.7°

6. The length of a tree's shadow is 20 feet when the angle of elevation to the Sun is 40° . How tall is the tree, to the nearest hundredths?



$$\tan 40^\circ = \frac{\text{opposite}}{\text{adjacent}} = \frac{h}{20}$$

$$20 \tan 40^\circ = h$$

$$16.78 \approx h$$