

**DO NOW**

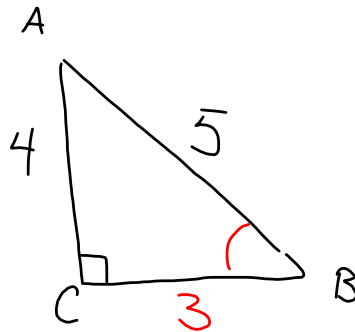
In  $\triangle ABC$ ,  $m\angle C = 90^\circ$ . If  $AB = 5$  and  $AC = 4$ , which statement is *not* true?

1)  $\cos A = \frac{4}{5}$

3)  $\sin B = \frac{4}{5}$

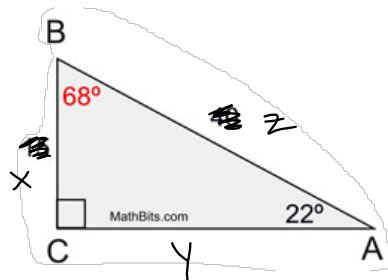
2)  $\tan A = \frac{3}{4}$

4)  $\tan B = \frac{5}{3}$



Jan 25-10:25 AM

Sine and cosine are called "**cofunctions**"



$$\sin 68 = \frac{y}{z} \quad \sin 22 = \frac{x}{z}$$

$$\cos 68 = \frac{x}{z} \quad \cos 22 = \frac{y}{z}$$

$$\sin 68 = \cos 22$$

$$\cos 68 = \sin 22$$

AND

$$68 + 22 = 90^\circ$$

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If  $\angle A$  and  $\angle B$  are the acute angles of a right triangle,

$$\sin A = \cos B$$

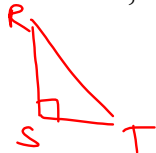
$$\theta = 40$$

$$\sin 40 = \cos 50$$

$$\sin \theta = \cos(90 - \theta) \rightarrow \text{complementary } \angle\text{'s}$$

$$\cos \theta = \sin(90 - \theta)$$

- 1) In  $\triangle RST$ , angle  $S$  is a right angle and  $\sin R = 0.26$ . Find  $\cos T$ .



$$\sin R = \cos T$$

$$\downarrow$$

$$\boxed{.26}$$

- 2) Given: Right triangle  $ABC$  with right angle at  $C$ . If  $\sin A$  increases, does  $\cos B$  increase or decrease? Explain why.

In  $\triangle ABC$ ,  $\sin A = \cos B$  so if  $\sin A$  increases,  $\cos B$  must also increase

Jan 30-7:07 AM

- 3) Find the value of  $R$  that will make the equation  $\sin 73^\circ = \cos R$  true when  $0^\circ < R < 90^\circ$ . Explain your answer.

$$m\angle R = 17^\circ$$

$73^\circ$  angle &  $R$  are complementary  $\angle$ 's

- 4) If  $\sin(3x + 10)^\circ = \cos(x + 24)^\circ$ , find  $x$ .

$$\sin A = \cos B$$

$$3x + 10 + x + 24 = 90$$

$$4x + 34 = 90$$

$$4x = 56$$

$$\boxed{x = 14}$$

Apr 20-9:36 AM

- 5) In right  $\triangle ABC$ ,  $m\angle C = 90^\circ$ ,  $\sin A = x + 0.1$  and  $\cos B = 2x - 0.4$ . Find  $x$ .

$$\begin{array}{c} \textcircled{\sin A} = \textcircled{\cos B} \\ \downarrow \qquad \qquad \downarrow \\ x + .1 = 2x - .4 \\ \boxed{.5 = x} \end{array}$$

- 6) Which of the following statements is false?

A)  $\sin 45 = \cos 45$

B)  $\sin 30 = \cos 30$   <sup>$30 + 30 \neq 90$</sup>

C)  $\cos 10 = \sin 80$

D)  $\sin 0 = \cos 90$

Apr 20-9:44 AM