

## Complementary Sine &amp; Cosine and Practice Problems

For problems 1-8, find the value of  $x$ . All problems are in degrees.

1.  $\sin(2x + 14) = \cos(x - 5)$

2.  $\sin(x) = \cos(x + 10)$

3.  $\sin(x) = \cos(x - 40)$

4.  $\sin(x) = \cos(x)$

5.  $\sin\left(\frac{x}{3} + 30\right) = \cos(x)$

6.  $\sin(x) = \cos 60^\circ$

7.  $\sin 50^\circ = 2x - 27; \cos 40^\circ = 13$

8.  $\sin 20^\circ = x^2; \cos 70^\circ = 8x - 16$

9. Find the value of:

a.  $\frac{\cos 15^\circ}{\cos 15^\circ} = \underline{\hspace{2cm}}$

b.  $\frac{\cos 15^\circ}{\sin 75^\circ} = \underline{\hspace{2cm}}$

10. Is this statement TRUE?  $(\sin 48^\circ) \cdot (\cos 42^\circ) = (\sin 48^\circ)^2$

Explain.

11. If  $\sin 15^\circ = 0.2588$  and  $\cos 15^\circ = 0.9659$ , then

$\sin 75^\circ = \underline{\hspace{2cm}}$  and  $\cos 75^\circ = \underline{\hspace{2cm}}$ .

12. If  $\sin 30^\circ = \frac{1}{2}$  and  $\cos \theta = \frac{1}{2}$ , then  $\theta = \underline{\hspace{2cm}}$ .

\_\_\_\_\_ 13. Which expression is always equivalent to  $\sin x$  when  $0^\circ < x < 90^\circ$ ?

- 1)  $\cos(90^\circ - x)$
- 2)  $\cos(45^\circ - x)$
- 3)  $\cos(2x)$
- 4)  $\cos x$

\_\_\_\_\_ 14. In scalene triangle  $ABC$  shown in the diagram below,  $m\angle C = 90^\circ$ .

Which equation is always true?

- 1)  $\sin A = \sin B$
- 2)  $\cos A = \cos B$
- 3)  $\cos A = \sin C$
- 4)  $\sin A = \cos B$

