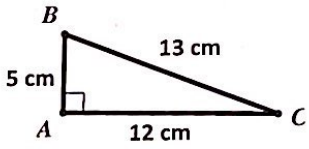
Day 6 – Sine and Cosine Identities – Practice

1. Which of the following is equal to cos 35°
   A) sin 35° B) cos 55° C) sin 55° D) cos 145°

2. Which of the following is equal to sin 8°
   A) sin 82° B) cos 8° C) cos 82° D) sin 98°

3. Which of the following statements is false?
   A) sin 45° = cos 45° B) sin 30° = cos 30° C) cos 10° = sin 80° D) sin 0° = cos 90°

4. Given the ratio $\frac{12}{13}$, which of the following is NOT equal to this value?
   A) sin ∠B B) cos ∠C C) $\frac{AC}{BC}$ D) sin ∠C



5. If cos θ = sin β then which of the following must be true?
   A) θ + β = 180° B) θ - β = 90° C) β = 90° - θ D) β - θ = 90°

6. Solve the following.
   a) sin 27° = cos 63° b) cos 55° = sin 35° c) sin 17.8° = cos 72.2°
   d) cos 90° = sin 0° e) cos 45° = sin 45° f) sin $62\frac{2}{3}°$ = cos $27\frac{1}{3}°$

7. Solve for the unknown.
   a) sin (2x + 1°) = cos (22°)

$2x+1 = 90-22$
$2x+1 = 68$
$2x = 67$
$x = 33.5$

   b) sin (5x + 15°) = cos (4x − 6°)

$5x+15 = 90-(4x-6)$
$5x+15 = 90-4x+6$
$5x+15 = 96-4x$
$9x = 81$
$x = 9$

   c) sin (2x) = cos (x)

$2x = 90-x$
$3x = 90$
$x = 30$

   d) sin $(\frac{1}{2}x)$ = cos $(\frac{5}{2}x+12)$

$\frac{1}{2}x = 90-(\frac{5}{2}x+12)$
$\frac{1}{2}x = 90-\frac{5}{2}x-12$
$3x = 78$
$x = 26$

   e) sin (7x + 15°) = cos (3x + 40°)

$7x+15 = 90-(3x+40)$
$7x+15 = 90-3x-40$
$7x+15 = 50-3x$
$10x = 35$
$x = 3.5$

   f) sin $(\frac{1}{3}x+2)$ = cos (53°)

$\frac{1}{3}x+2 = 90-53$
$\frac{1}{3}x+2 = 37$
$3\cdot\frac{1}{3}x = 35\cdot 3$
$x = 105$

8. If sin 47° = .73, what is the cosine of 43°? .73

9. If cos 82° = .14, what is the sine of 8°? .14

10. Find the value of θ for which sin θ = cos 22°. 68°

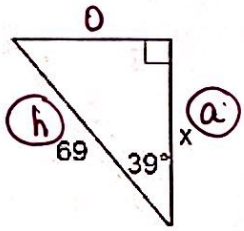
11. Find the value of θ for which cos θ = sin 41°. 49°

12. Explain WHY sin 20° = 0.342 and the cos 70° = 0.342.

The sin x = cos (90-x) so sin 20° = cos 70° (20°+70° = 90°)

In the following problems, using the angle that is given, MARK each given side as A (*adjacent*), O (*opposite*), or H (*hypotenuse*). Then TELL which TRIG RATIO you have. *You will NOT be solving the problem for x (we haven't learned how YET).*

1. Which trig ratio is represented?



A. SIN
B. COS
C. TAN

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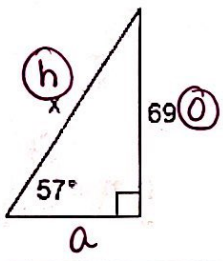
2. Which trig ratio is represented?



D. SIN
E. COS
F. TAN

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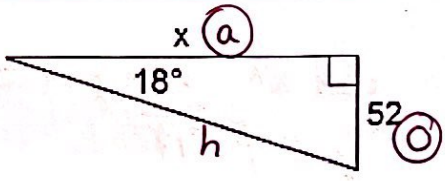
3. Which trig ratio is represented?



G. SIN
H. COS
I. TAN
