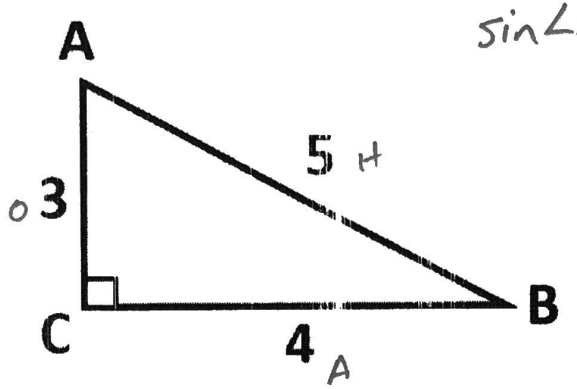
Sine/Cosine Relationships Guided Notes

Name: _____

Date: 11/29 Period: _____

Sine & Cosine

$\sin\angle A = \cos\angle B$



1) Find sin ∠A. = $\frac{4}{5}$
2) Find cos ∠A. = $\frac{3}{5}$
3) Find sin ∠B. = $\frac{3}{5}$
4) Find cos ∠B. = $\frac{4}{5}$

Did you notice that....

The **sine** of one acute angle is equal to the cos of the other acute angle.

Things to know

- The acute angles of a **right triangle** are complementary (meaning they add to 90°).
- If an acute angle is labeled as θ ("theta") the other angle can be labeled as B.

  Explanation: Beta $(90-\theta)$
- The angle measure next to **sine** needs to be Complementary to the angle measure next to cosine.

Write sine in terms of cosine.

1) sin 42° = cos (90-42)

   sin 42° = cos 48°

2) sin 80° = cos 10°

Write cosine in terms of sine.

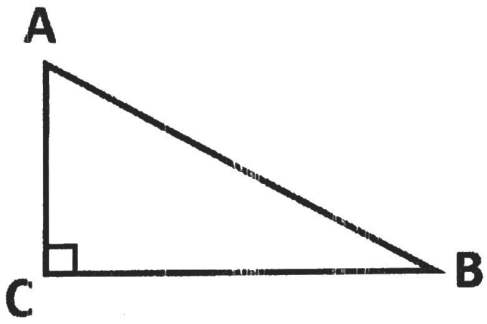
1) cos 18° = sin (90-18)

   = sin (72)

2) cos 65° = sin (90-65)

   = sin 25

Write sin A in terms of cosine.



Write cosine A in terms of sine.

Find two angles that satisfy the equation.

1. $\sin(2x - 4) = \cos(3x + 9)$

$2x - 4 + 3x + 9 = 90$

$5x + 5 = 90$

$5x = 85 \quad x = 17$

$\sin(2(17) - 4) = \cos(3(17) + 9)$

$\sin 30 = \cos 60$

2. $\sin(6x + 2) = \cos(4x + 8)$

$6x + 2 + 4x + 8 = 90$

$10x + 10 = 90$

$10x = 80$

$x = 8$

$\sin(6(8) + 2) = \cos(4(8) + 8)$

$\sin 50 = \cos 40$