

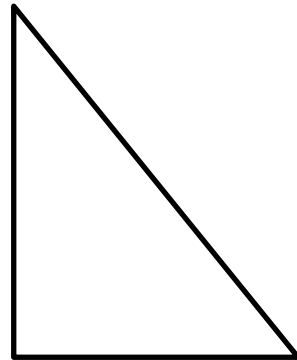
Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Trigonometry Co-Functions**

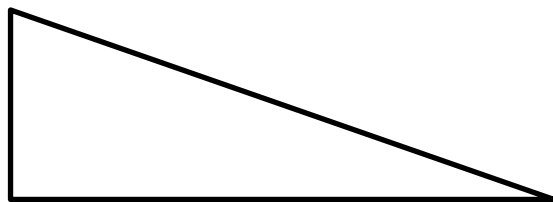
Let's look at the relationship between our trig ratios.

- Start with a right triangle  $\triangle ABC$  where  $\angle B = 90^\circ$
- The acute angles will always be \_\_\_\_\_.

  - If  $\angle A = 30^\circ$ , then  $\angle C =$  \_\_\_\_\_
  - If  $\angle A = 45^\circ$ , then  $\angle C =$  \_\_\_\_\_
  - If  $\angle A = 22^\circ$ , then  $\angle C =$  \_\_\_\_\_

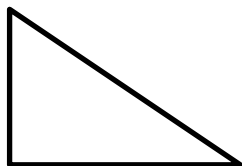


- Let's summarize:
  - If  $\angle A = \theta$ , then  $\angle C =$  \_\_\_\_\_



For each of the following find the trigonometric ratio.

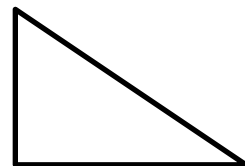
$\sin \theta =$  \_\_\_\_\_



$\cos \theta =$  \_\_\_\_\_

$\tan \theta =$  \_\_\_\_\_

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



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

$\tan(90 - \theta) =$  \_\_\_\_\_

**Trigonometry Co-Functions**

$\sin \theta^\circ =$

$\cos \theta^\circ =$

$\tan \theta^\circ =$

Use co-functions to answer the following:

1.  $\sin \theta = \frac{21}{29}$   
 $\cos(90 - \theta) =$  \_\_\_\_\_

2.  $\cos \theta = \frac{8}{17}$   
 $\sin(90 - \theta) =$  \_\_\_\_\_

3.  $\tan \theta = \frac{12}{37}$   
 $\tan(90 - \theta) =$  \_\_\_\_\_

4.  $\sin 15 = \cos$  \_\_\_\_\_

5.  $\sin$  \_\_\_\_\_  $= \cos 54$

6.  $\sin 22 = \cos$  \_\_\_\_\_

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7. Is it ever possible that  $\sin(x) = \cos(x)$ . Explain your reasoning.

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Draw  $\triangle ABC$  where  $\angle B = 90^\circ$  and  $\sin A = \frac{6}{10}$ .

8. What is the length of AB? \_\_\_\_\_

9. What is  $\cos C$ ? \_\_\_\_\_

10. What is  $\sin A$ ? \_\_\_\_\_

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11. In right  $\triangle ABC$ :  $m\angle C = 90^\circ$ . If  $\sin A = m$ , then  $\cos B =$  \_\_\_\_\_ .

A.  $90 - m$

B.  $45 - m$

C.  $90 + m$

D.  $m$

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12. If  $\cos 40 = \sin \theta$ , then  $\theta =$  \_\_\_\_\_ .

A.  $40^\circ$

B.  $50^\circ$

C.  $60^\circ$

D.  $90^\circ$

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13. If  $\sin 71 = \cos \theta$ , then  $\theta =$  \_\_\_\_\_ .

A.  $71^\circ$

B.  $35^\circ$

C.  $29^\circ$

D.  $19^\circ$

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14. In  $\triangle ABC$ :  $m\angle C = 90^\circ$ . If  $\sin A = \frac{1}{4}$ , then \_\_\_\_\_ =  $\frac{1}{4}$ . (There are 2 answers!)

A.  $\sin(B)$

B.  $\cos(B)$

C.  $\cos(90-A)$

D.  $\cos(90-B)$

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15. In  $\triangle ABC$ :  $m\angle C = 90^\circ$ . If  $\sin A = 3x - 0.6$  and  $\cos B = 4x - 0.9$ , then  $x =$  \_\_\_\_\_ .

A. 0.3

B. 0.4

C. 0.6

D. 1.5

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16. In  $\triangle ABC$ :  $m\angle C = 90^\circ$ . If  $\sin A = m$  and  $\cos A = k$ , then  $\cos B + \sin B =$  \_\_\_\_\_ .

A.  $m + k$

B.  $m - k$

C.  $k - m$

D.  $2k$

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