

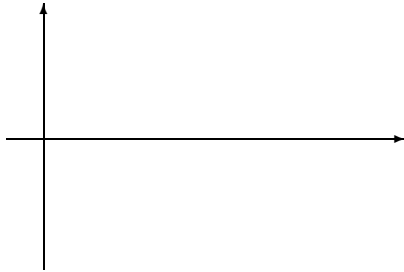
1. Use a half angle formula to find the exact value of  $\sin\left(\frac{\pi}{8}\right)$

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2. Solve  $2 \sin(\theta) \cos(\theta) - 4 \sin(\theta) - \cos(\theta) + 2 = 0$  for  $\theta$  on the interval  $0 \leq \theta < 2\pi$ .

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3. Sketch the graph of  $y = 5 \sin\left(\frac{\theta}{2} + \frac{\pi}{4}\right)$  on  $(-\pi/2, 7\pi/2)$  and find the amplitude, period and phase shift.



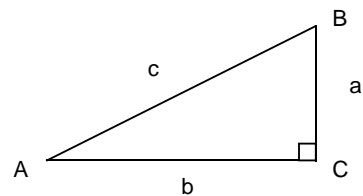
4. Express  $y = \sqrt{3} \sin(\theta) - \cos(\theta)$  in the form  $y = a \sin(b\theta + c)$

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5. Find  $\sin(\tan^{-1}u)$ .

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6. In the following right triangle  
 $b = 166$  and  $A = 56.1^\circ$ , find  $c$ .



7. Compute the exact value of  $20 \sin^4(45^\circ) - 6 \cos^2(30^\circ) + 3 \sin^3(30^\circ) - \sin(0^\circ)$   
 (No Calculators - show work with exact answers at each step)

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8. San Bernadino, Calif., is 100 miles due north of San Diego. Yuma, Ariz. is  $S 56^\circ E$  from San Bernadino and due east of San Diego. How far is Yuma from San Bernadino?