

Each question worth 8 points unless otherwise specified. Show all your work for full credit.

Find all solutions $0 \leq \theta < 2\pi$.

1) $4 \cos^2 \theta - 3 = 0$

2) $2 \sin^2 \theta - \sin \theta - 1 = 0$

3) $\tan \theta \sin \theta + \sin \theta = 0$

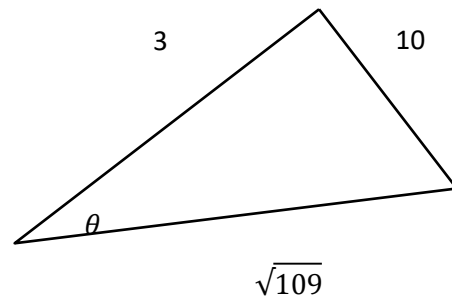
*Find the **exact** value.*

4) $\sin\left(-\frac{5\pi}{12}\right)$

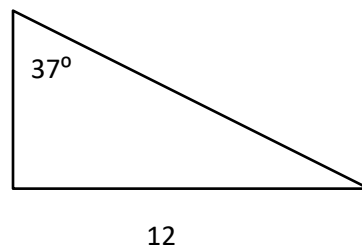
Find the general solution.

5) $2\sin(2\theta) = 1$

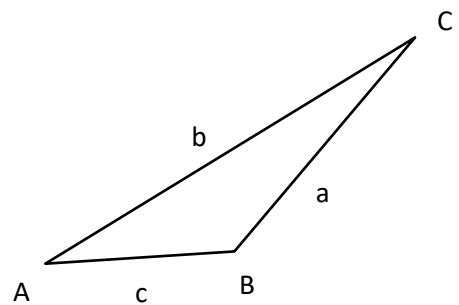
- 6) Find the exact value of all six trigonometric ratios of the right triangle. No need to rationalize the denominator.



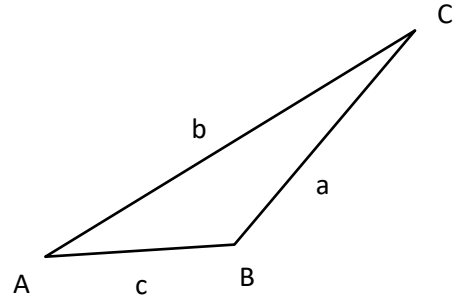
- 7) Solve the right triangle. Round to two decimal places where needed.



- 8) Solve the triangle (not necessarily a right triangle).
 $a = 75$, $b = 100$, $\angle A = 30^\circ$



- 9) Solve the triangle (not necessarily a right triangle).
 $a = 65, b = 50, \angle C = 52^\circ$



- 10) Find the values of the five remaining trig functions if $\cot \theta = \frac{1}{4}, \sin \theta < 0$. (10 points)

- 11) Evaluate (exact answers in radians). (2 points each)

a) $\sin^{-1} \frac{1}{2}$

b) $\cos^{-1} 0$

c) $\sin^{-1} \left(\sin \frac{4\pi}{3} \right)$

d) $\cos^{-1}(\cos(-135^\circ))$

e) $\tan^{-1}(-1)$