

Please do all of your work in the blue test booklet or on the pages you attach to this test. Keep your work neat and in order. Place a box around your solutions.
SHOW WORK Give exact answers where possible

1) If $f(x) = x^2 + 1$ and $g(x) = \sin x + 4$ find $(f \circ g)(\frac{\pi}{4})$ and $(g \circ f)(\frac{\pi}{4})$ Are they equal?

2) Find the exact value of "cos t" **using the unit circle** if $\sin t = -.7$ and $\tan t < 0$. Show sketch and work to verify your answers.

3) Find the exact value of "sin t, cos t, and tan t" **using the unit circle**. If a point in Quadrant IV of the line $y = -2x$ is on the terminal side of the angle

4) Find the smallest negative and positive radian measures that are coterminal with the angle 580 degrees

5) Find the distance that a bike travels in feet in FOUR minutes. The bike has wheels with 18-inch diameter. The pedals are turning at 40 rev per minute, with a front chain gear of radius 3 inches and back gear for the chain of 2 inches radius.

6) Use your calculator to make a sketch of $f(x) = \frac{\pi}{2} \cos x$ between $[0, 4\pi]$ only, make sure you show the scale of graph on both axes

7) Simplify the following: Use identities to help with the process

$$(2\cos(-x) + \sin(x)) (\cos(x) - 2\sin(-x))$$

8) If the $\cos t = w + 5$ in quadrant III, find the value of $\tan t$. **Use unit circle.**

Scores	Do not write	In this area		
1	2	3	4	5
6	7	8		