

You may keep this page of questions. Turn in your answers with all of your work on the yellow paper and pink paper. You are **NOT** allowed to use calculators on questions #1 – 5. Work these questions on the yellow paper. After you have finished these first five questions, turn in the first part of the exam and receive pink paper to use for the last three questions.

(1) 10 Points. Find exact values for the six trigonometric functions at the angle θ if θ is an angle in standard position whose terminal side passes through the point $(-4, 7)$.

(2) 8 Points. Find the measure of the angle θ , in radians, if θ is an angle in standard position, $0 \leq \theta < 2\pi$, the terminal side of θ is in quadrant III, and the reference angle, θ_R , for θ has measure $3\pi/7$ radians.

(3) 25 Points. Find exact values for the following:

(a) $W\left(\frac{5\pi}{6}\right)$ (b) $\cos(\pi)$ (c) $\tan(120^\circ)$

(d) $\sin^{-1}\left(\frac{1}{2}\right)$ (e) $\sin(\cos^{-1}\left(-\frac{4}{7}\right))$

(4) 12 Points. Sketch a graph of the equation $y = -3 + 3\sin(\pi x)$. Mark scales on the coordinate axes!

(5) 10 Points. Find an equation for a function having the following graph:



Turn in your work and answers for the first five questions and any remaining yellow paper before working the last three questions.

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(6) 10 Points. Find the length of the arc intercepted by a central angle of 0.83192 radians in a circle having a radius of 237.89 meters.

(7) 12 Points. Use your calculator to find approximate values for the following. Round appropriately. All angles are in radians for this problem.

(a) $\sin(-4.894)$ (b) $\sec(0.38712)$ (c) $\tan^{-1}(0.7993)$ (d) $\csc^{-1}(4.85)$

(8) 13 Points. Solve the right triangle $\triangle ABC$ if side b has length 194.71 feet and angle α has measure 23.804° . (As usual, the angle γ is the right angle and side c is the hypotenuse.)