PS 1 Calculus Due Wednesday 9/20 at the beginning of class.

Academic Honesty Certification:

Your signature_____

Show your steps. And work on another piece of paper. Each question is scored: 2 points for the correct answer and 3p correct work. Partial credit may be awarded.

Find all solutions of the equation in the interval [0, 2π).

1) $\cos 2x = \frac{\sqrt{2}}{2}$

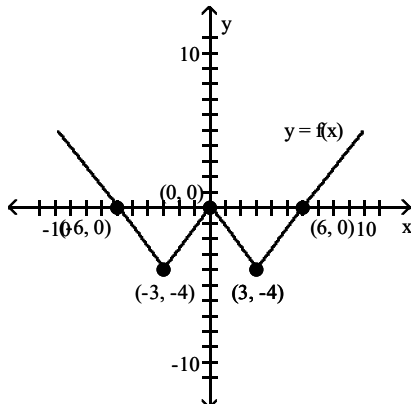
Solve the system of equations by the elimination method. Check your solutions. For any dependent equations, write your answer in the ordered pair form.

2)

$$\begin{cases} x - 4y = -4 \\ -4x - 3y = -3 \end{cases}$$

Use the accompanying graph of y = f(x) to sketch the graph of the indicated equation.

3) $y = -\frac{1}{2}f(x-2)+3$



Find an algebraic expression equivalent to the given expression.

4) sin (arcsec u)

5) Find the average rate of change of each function on the interval specified. Your answers will be expressions involving a parameter (b or h).

$$b(x) = \frac{1}{x+3} \text{ on } [1, 1+h]$$

You need to have a limit expression for the ball's velocity.

6) A ball dropped from the top of a building has a height of $s = 144 - 16t^2$ meters after t seconds. How long does it take the ball to reach the ground? What is the ball's velocity at the moment of impact?

7)

State the domain of f(x)

$$f(x) = \frac{\sqrt{x+5}}{x-6}$$

Write an equation of the line. Write the equation in point–slope form

8) Through (–3, 13); perpendicular to $9x + 4y = 48$

Solve the logarithmic equation.

9) $\log (x + 9) = 1 - \log x$

Solve the equation.

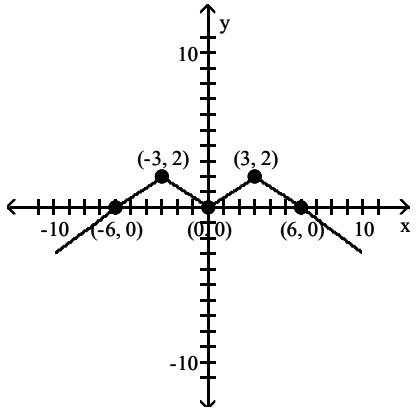
10) $7^{x-2} = 1$

Answer Key
Testname: CALCPS 1 F 17

1) $\frac{\pi}{8}, \frac{9\pi}{8}, \frac{7\pi}{8}, \frac{15\pi}{8}$

2) {(0, 1)}

3)



4) $\frac{\sqrt{u^2 - 1}}{u}$

5)

6) 3 sec, –96 m/sec

7)

8) $y = \frac{4}{9}x + \frac{43}{3}$

9) 1

10) 2