

Name: \_\_\_\_\_

**BUSINESS CALCULUS I**

Spring 2014

Section: \_\_\_\_\_

ID: \_\_\_\_\_

**Prerequisite Assessment of Skills for Success (PASS)**

Date of TSI (if taken): \_\_\_\_\_

Date of last math course: \_\_\_\_\_

Last math course grade: \_\_\_\_\_

Bubble in each correct answer as  ; **25 MINUTES** ; Do not spend too much time on any one problem  
**NO CALCULATOR**

- Evaluate  $\frac{9}{8} - \frac{5}{12}$ .  
  $\frac{1}{2}$        -1        $\frac{15}{14}$         $\frac{17}{24}$         $\frac{1}{4}$
- Evaluate  $4 + 12 \div 2 - 3$ .  
 -16       5       -8       7       6
- Solve for x:  $14 - 5x = 3x - 10$ .  
  $\frac{1}{2}$        3       -6       12        $-\frac{1}{2}$
- If cost  $C(x) = 5 + 0.75x + .1x^2$  and revenue  $R(x) = 0.5x^2 - 1.25x$ , find profit  $P(x)$  (revenue - cost).  
  $5 - 2x - 0.4x^2$         $0.4x^2 - 2x - 5$         $-5 + 4.25x - 1.35x^2$         $-5 + 0.5x + 0.4x^2$         $0.6x^2 - 2x - 5$
- The expression  $(5x - 4)^2$  is equivalent to :  
  $25x^2 - 40x + 16$         $10x - 8$         $16 - 20x + 25x^2$         $10x^2 - 16$         $25x^2 - 16$
- Consider the function  $f(x) = 2x^2 - 12 - 5x$ ; evaluate  $f(-3)$ .  
 -45       24       -15       15       21
- Solve for "b" in the equation  $\frac{k}{b} = \frac{r}{g}$ .  
  $\frac{kr}{g}$         $\frac{g}{kr}$         $\frac{gk}{r}$         $\frac{k}{rg}$         $\frac{r}{kg}$
- Which is a factor of  $f(x) = 9x^2 + 3x - 2$ ?  
  $3x + 1$         $x - 2$         $3x - 2$         $9x - 1$         $3x + 2$
- Simplify  $\frac{(6x^2)(2x^3)^2}{3x^7}$ .  
 8        $2x$         $4x^2$         $8x$         $4x$
- Simplify  $\frac{2x}{1-x^2} - \frac{2}{1-x}$ .  
  $\frac{2}{x^2 - 1}$         $\frac{-2}{1+x}$         $\frac{x}{1-x}$         $\frac{-4x}{x^3 - x^2 - x + 1}$         $\frac{2x-2}{1-x^2}$

11. The solution set to the equation  $12x^2 + 3 = 0$  is :

- $\{0.5\}$         $\{-2, 2\}$         $\{-0.5, 0.5\}$         $\{0.25\}$         $\emptyset$

12. The domain of the function  $f(x) = \frac{x-1}{3-x}$  in interval notation is:

- $(-\infty, 1) \cup (1, \infty)$         $(1, \infty)$         $(-\infty, 3) \cup (3, \infty)$         $(1, 3)$         $(-\infty, 3)$

13. Which of the following factored form expressions is equivalent to  $24x^{1/2} - 16x^{3/2}$  ?

- $x^{-1/2}(24x-16)$         $8x^{1/2}(3-2x)$         $4x^{3/2}(6x-4)$         $8(x-2x^{3/2})$         $8x(3x-2)$

14. Which is an equation of the line with slope of  $-3$  that passes through the point  $(-4, 1)$  ?

- $y-3 = -4(x+1)$         $y+1 = -3(x-4)$         $y-4 = x-3$         $y-1 = -3(x+4)$         $y-4x = -3$

15. Simplify  $\frac{2+\sqrt{32}}{2}$ :

- $\sqrt{32}$         $2\sqrt{2}$         $4$         $5$         $\sqrt{8}+1$

16. Find  $f(x+h)$  given that  $f(x) = \sqrt{x-2}$ .

- $\sqrt{x+h} - \sqrt{2}$         $\sqrt{x-2} - \sqrt{h}$         $\sqrt{x-2} + h$         $\sqrt{x-2+h}$         $\sqrt{x+h} - 2$

17. Write the expression  $4\log x - 3\log y + 2\log z$  as a single term .

- $\frac{x^4 z^2}{y^3}$         $\log(4x-3y+2z)$         $\log \frac{8xz}{3y}$         $\log(x^4 - y^3 + z^2)$         $\log \frac{z^2 x^4}{y^3}$

18. Simplify the expression  $\frac{\frac{x}{x^2-1}}{\frac{x^2}{x+1}}$  .

- $\frac{1}{x^2-x}$         $\frac{1}{x}$         $\frac{x}{x^2-1}$         $\frac{x}{x+1}$         $\frac{x-1}{x}$

19. For  $g(x) = x - 2$  and  $f(x) = 4 - x^2$ , form  $f(g(x))$  .

- $8 - 2x - x^2$         $-x^3 + 2x^2 + 4x - 8$         $4x - x^2$         $2 + x - x^2$         $8 - x^2$

20. Given the piecewise defined function  $f(x) = \begin{cases} 4x+7 & \text{if } x \leq -3 \\ 2x^2-3 & \text{if } x > -3 \end{cases}$ , find  $f(-1)$  .

- $-3$         $-1$         $3$         $-5$         $11$