## Sample Math Placement Test for Business Students

## **Duration: 60 minutes**

- 1. Turn off your mobile phones.
- 2. Calculators are not allowed.

## You have 20 multiple choice questions, each with 4 possible answers. Only one of the 4 possible answers is correct.

- 1. Simplify the radical expression  $\frac{\sqrt{9x^2} 4\sqrt{x^3}}{3 4\sqrt{x}}$ , x > 0
  - a) **x**
  - b) -*x*
  - c) 2*x*
  - d)  $x\sqrt{x}$
- 2. Rationalize the denominator of  $\frac{3-\sqrt{3}}{2+\sqrt{3}} 9$ 
  - a)  $-5\sqrt{3}$
  - b)  $-2\sqrt{3}$
  - c) 9√3
  - d) 5√3

3. What is the domain of the function  $f(x) = \frac{1}{\sqrt{x-5}} - 4$ ?

- a) *x* < 5
- b) x > 5
- c)  $x \leq 5$
- d)  $x \ge 5$

- 4. The derivative of  $f(x) = x^{-2}$  is
  - a)  $-2x^{-3}$
  - b)  $2x^{-3}$
  - c) *x*<sup>-1</sup>
  - d)  $2x^{-1}$

5. Solve for x the equation  $\frac{1}{x-6} = \frac{3}{5x+1}$ 

- a)  $-\frac{19}{2}$ b)  $-\frac{7}{2}$ c)  $\frac{19}{2}$
- d)  $-\frac{12}{4}$
- 6. Find  $\lim_{x \to 1} \frac{x-1}{\sqrt{x^2-1}}$ a) 1
  - b) **0**
  - c) ∞
  - d) The limit fails to exist
- 7. Solve for x the inequality  $\frac{1}{x} \ge \frac{1}{3} + \frac{2}{x}$ 
  - a)  $x \ge 3$
  - b) *x* > 3
  - c)  $x \leq 3$
  - d) *x* < 3

- 8. Solve for x the inequality  $x^2 3x < 4$ 
  - a) 0 < x < 4
  - b) -1 < x < 4
  - c) x > 4 or x < -1
  - d) x > 4
- 9. Amy charged \$500 worth of merchandize on her credit card. When she got her bill, which didn't include any interest, she paid \$100. During the next month she charged on her credit card another \$70 worth of goods. When she got her next bill, she was charged 2% interest on her entire balance. How much interest was she charged?
  - a) \$2.00
  - b) \$10.00
  - c) \$9.40
  - d) \$0.00
- 10. What is the average of the following numbers 2, 4, 6, 8?
  - a) 6
  - b) 4.5
  - c) **5**
  - d) 5.5
- 11. Jack works a variety of different jobs. On Monday he earned \$50. Tuesday he earned \$40. Wednesday and Thursday he earned \$30 each day, and on Friday he earned \$100. What was the variance of Jack's daily income?
  - a) 750
  - b) 950
  - c) **850**
  - d) 1000

- 12. Let A and B be two independent events such that P(A) = P(B) = 0.5. What is the value of P (A U B) ?
  - a) 0.55
  - b) 0.66
  - c) 0.85
  - d) 0.75

13. The equation of the line whose slope is -5 and passes by the point (0, 8) is

- a) y = -5x + 8b)  $y = -\frac{1}{5}x + 8$ c)  $y = \frac{1}{5}x + 8$ d) y = 5x + 8
- 14. A lawn service company offers services within a 30 mile radius of their office. When the service area is represented graphically with the office located at (0,0), the equation that represents the service area is:
  - a)  $x^{2} + y^{2} = 30$ b)  $x^{2} + y^{2} = 60$ c)  $x^{2} + y^{2} = 600$ d)  $x^{2} + y^{2} = 900$

15. Find the midpoint of the segment [AB] connecting the points A(-a, -b) and B(7a, -7b).

- a) (3a, -3b)b) (3a, -4b)c) (2a, -3b)d) (-2a, 4b)
- 16. Find the length of [TV].
  - a) 11 b)  $11\sqrt{2}$ c)  $11\sqrt{3}$ d) 22

- 17. How many subsets does the set  $\{a, b, c, d\}$  have?
  - a) 8
  - b) 5
  - c) 16
  - d) 32
- 18. A contractor completed two-ninths of a job before a second contractor completed an additional one-third. What fraction of the job is left undone?
  - a)  $\frac{1}{9}$ b)  $\frac{8}{9}$ c)  $\frac{4}{9}$ d)  $\frac{5}{9}$
- 19. A man's regular pay is \$4 per hour up to 40 hours. Overtime is twice the payment for regular time. If he was paid \$200, how many hours overtime did he work?
  - a) 8
  - b) 10
  - c) **5**
  - d) 40
- 20. Eric's bank statement shows a pervious balance of \$724.12. He made deposits of \$123.18 and \$85.26. He wrote checks for \$38.12 and \$117.98. He has a \$15.00 service charge. What is the present balance?
  - a) \$761.46
  - b) \$686.20
  - c) \$776.46
  - d) \$809.58