

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) $2x$
- 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) $9\sqrt{3}$
- d) $5\sqrt{3}$

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) $x \geq 5$

4. The derivative of $f(x) = x^{-2}$ is

a) $-2x^{-1}$

b) $2x^{-3}$

c) x^{-1}

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 $\lim_{x \rightarrow 1} \frac{x-1}{\sqrt{x^2-1}}$

a) 1

b) 0

c) ∞

d) The limit fails to exist

7. Solve for x the inequality $\frac{1}{x} \geq \frac{1}{3} + \frac{2}{x}$

a) $x \geq 3$

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 merchandise 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 $P(A \cup B)$?

- 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) **$y = -5x + 8$**
- b) $y = -\frac{1}{5}x + 8$
- 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:

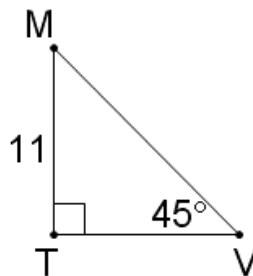
- a) $x^2 + y^2 = 30$
- b) $x^2 + y^2 = 60$
- c) $x^2 + y^2 = 600$
- d) **$x^2 + y^2 = 900$**

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 previous 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