



# The Learning Centre

## Business Math Proficiency Practice Test

This practice test contains 24 questions. The actual test contains 25 questions.  
The use of a calculator is permitted.

Topics for this test include: factoring and expanding, linear equations, ratios and proportions, percentages, graphs of lines, word problems, exponents, systems of equations, arithmetic mean.

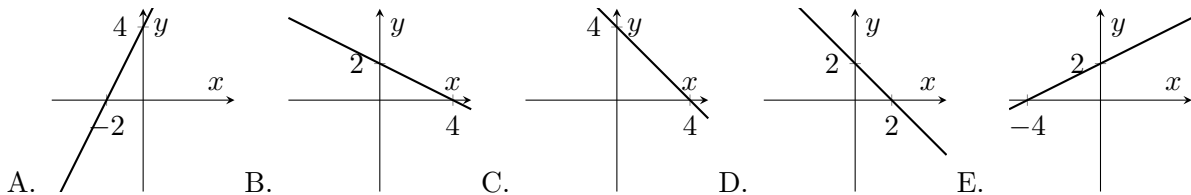
1. Simplify:  $6x - 2(x - 2y) + 2y$   
 A.  $2(2x + 3y)$       B.  $4(x - y)$       C.  $4x$       D.  $4(x + y)$       E.  $2(2x - 3y)$

2. If  $\frac{8}{5} = \frac{4}{x}$ , then  $x =$   
 A.  $\frac{4}{10}$       B. 2      C.  $\frac{10}{4}$       D.  $\frac{1}{2}$       E. 32

3. At what point does the graph of  $y = 4x - 7$  cross the  $x$ -axis?  
 A. 4      B. -7      C.  $\frac{7}{4}$       D.  $-\frac{7}{4}$       E. 0

4. The volume of water  $V$  (in litres) in a leaky bucket is given by  $V = -\frac{4}{5}t + 10$ , where  $t$  is the length of time (in minutes) from when it was filled. After how many minutes is there only 8 L of water left in the bucket?  
 A. 20      B.  $\frac{18}{5}$       C. 15      D.  $\frac{5}{2}$       E.  $\frac{6}{5}$

5. Which of the following graphs corresponds to the equation  $x + 2y = 4$ ?



6. Find the slope of the equation  $2.10x + 1.15y = 2.30$ . Round to two decimal places.  
 A. -2.10      B. -1.83      C. 1.83      D. 2.00      E. 2.10

7. The  $x$ -coordinate of the solution of the system of equations  $\begin{cases} 4x + 3y = 8 \\ 4x - 3y = 4 \end{cases}$  is  
 A. 1      B.  $\frac{2}{3}$       C. 2      D.  $\frac{3}{2}$       E. 4

8. In a certain company, 240 of the employees are men. What is the total number of employees if 5 out of every 8 employees are men?  
 A. 90      B. 150      C. 1920      D. 400      E. 384

9. A student has 42 coins worth a total of \$5.90. Each coin is either a nickel (five cents) or a quarter (twenty-five cents). If  $x$  is the number of nickels, then an equation that would allow you to determine  $x$  would be:
- A.  $0.05x + 0.25(42 - x) = 5.90$
  - B.  $0.05 + 0.25(42 - x) = 5.90$
  - C.  $0.05x + 10.50 = 5.90$
  - D.  $42x = 5.90$
  - E.  $\frac{x}{0.05} + \frac{42 - x}{0.25} = 5.90$
10. Simplify  $(3x^2y)(2x^3y^4)^2$
- A.  $36x^{10}y^{10}$
  - B.  $12x^8y^9$
  - C.  $6x^8y^9$
  - D.  $6x^7y^9$
  - E.  $12x^{11}y^{17}$
11. Solve for  $x$ :  $-8x - 24 = -6x - 6$
- A.  $-12$
  - B.  $-15$
  - C.  $-9$
  - D.  $12$
  - E.  $9$
12. Evaluate  $\$500.00 \left(1 - \frac{0.05}{3}\right)^4$  to the nearest penny.
- A.  $\$500.00$
  - B.  $\$5.03$
  - C.  $\$135.75$
  - D.  $\$467.49$
  - E. none of the above
13. What amount of interest,  $I$ , will be charged on a principal,  $P$ , of \$10,000 borrowed for eight months at a simple interest rate,  $r$ , of 12% per year? The formula for simple interest is  $I = Prt$ , where  $t$  is the time, in years.
- A.  $\$800.00$
  - B.  $\$1100.00$
  - C.  $\$440.00$
  - D.  $\$5500.00$
  - E. none of the above
14. How much is \$62.50, decreased by 1.35%?
- A.  $\$64.49$
  - B.  $\$61.15$
  - C.  $\$61.66$
  - D.  $\$21.88$
  - E. none of the above
15. The price of gas increases from 81.9 cents per liter to 88.5 cents per liter. What is the percentage increase in the price of gas?
- A. 1.08%
  - B. 6.60%
  - C. 7.46%
  - D. 8.06%
  - E. none of the above

16. Solve the following equation:  $2(3x - 4) + 7 = 3(2 - x)$   
 A.  $-2$                       B.  $\frac{7}{9}$                       C.  $\frac{3}{7}$                       D.  $\frac{7}{6}$                       E.  $\frac{7}{3}$
17. Evaluate  $\frac{S}{(1+i)^n}$  for  $S = \$2000$ ,  $i = 0.005$ , and  $n = 6$  to the nearest penny.  
 A. \$331.67      B. \$1941.04      C. \$1941.75      D. \$2060.76      E. none of the above
18. An investment earns a periodic rate of interest,  $i$ , of 1.5% each month. Starting with a present value,  $P$  of \$3000, what will the future value,  $F$ , of your investment be in two years? The formula is  $F = P(1+i)^n$ , where  $n$  is the number of months for the investment.  
 A. \$18750.00      B. \$3090.68      C. \$3967.50      D. \$4288.51      E. none of the above
19. Determine the average (arithmetic mean) of \$160, \$182, \$174, and \$202.  
 A. \$718              B. \$179.50              C. \$359              D. \$186              E. none of the above
20. To manufacture widgets, it costs \$42.00 to set up a machine, plus \$1.75 per widget for material. Find an expression for the total cost of producing  $x$  widgets.  
 A.  $(\$42.00 + \$1.75)x$   
 B.  $\$42.00x + \$1.75$   
 C.  $(\$42.00 - \$1.75)x$   
 D.  $\$42.00 - \$1.75x$   
 E.  $\$42.00 + \$1.75x$
21. Evaluate:  $2 \cdot \frac{1}{10^1} + 3 \cdot \frac{1}{10^2} - 4 \cdot \frac{1}{10^3}$   
 A. 0.226              B. 0.234              C. 0.236              D. 0.217              E. 0.483
22. Evaluate:  $\frac{\sqrt{4.2^2 + 6.3^2}}{0.544 + 3.22}$   
 A. 2.79              B. 22.52              C. 17.14              D. 19.00              E. 2.01
23. Solve the following equation for  $x$ :  $400 = 150(2 + 6x)$   
 A.  $\frac{124}{3}$                       B.  $\frac{1}{9}$                       C.  $\frac{1}{3}$                       D.  $\frac{50}{3}$                       E.  $\frac{26}{9}$
24. In Bucks County, the property tax rate is \$25.32 per \$1000 of assessed value. If a house and property have a value of \$128,000, what amount of property tax will the owner have to pay?  
 A. \$324.10      B. \$505.53      C. \$3240.96      D. \$5055.29      E. none of the above

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Answers:

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|-------|-------|-------|-------|-------|-------|
| 1. A  | 2. C  | 3. C  | 4. D  | 5. B  | 6. B  |
| 7. D  | 8. E  | 9. A  | 10. B | 11. C | 12. D |
| 13. A | 14. C | 15. D | 16. B | 17. B | 18. D |
| 19. B | 20. E | 21. A | 22. E | 23. B | 24. C |