



# The Learning Centre

## Basic Algebra Proficiency Practice Test

This practice test contains 13 questions. The actual test contains 25 questions.  
The use of a calculator is not permitted.

Topics for this test include: factoring, rational expressions, inequalities, systems of equations, word problems, exponents, radicals, ratios and proportions, graphs of linear functions.

1.  $\frac{2x}{x^2 - 25} \cdot \frac{1}{x + 5} =$

A.  $\frac{2x}{x^2 - 25}$       B.  $\frac{1}{x + 5}$       C.  $\frac{1}{x - 5}$       D.  $x + 5$       E.  $\frac{2x}{x^2} \cdot \frac{1}{x - 20}$

2.  $\frac{a}{a + \frac{3}{b}} =$

A.  $\frac{b}{b + 3}$       B.  $\frac{b + 3}{b}$       C.  $\frac{b}{3}$       D.  $\frac{ab}{ab + 3}$       E.  $\frac{ab}{a + 3}$

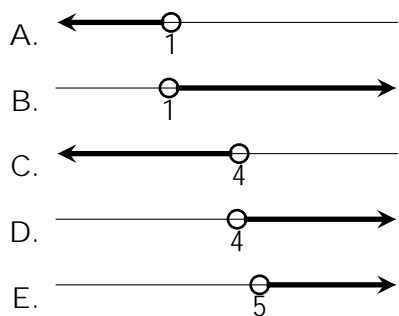
3.  $\sqrt[10]{\frac{15x}{6x}}$

A.  $\frac{\sqrt[10]{6x}}{\sqrt[10]{15x}}$       B.  $\frac{\sqrt[10]{3x}}{\sqrt[10]{3x}}$       C.  $\frac{\sqrt[10]{15x}}{\sqrt[10]{3x}}$       D.  $\frac{\sqrt[10]{3x}}{2}$       E.  $\frac{\sqrt[10]{15x}}{10}$

4.  $\sqrt[9]{9x} + 5\sqrt[10]{x} =$

A.  $\sqrt[14]{x}$       B.  $5\sqrt[10]{x}$       C.  $\sqrt[34]{x}$       D.  $8\sqrt[10]{x}$       E.  $6\sqrt[10]{x}$

5. Of the following graphs, which best represents the solution of the inequality  $2x + 3 < 5$ ?



6. If  $\frac{1}{x} + 5 = \frac{x - 4}{x}$ , then  $x =$

A. 10      B.  $\frac{1}{8}$       C.  $\frac{1}{2}$       D.  $\frac{3}{4}$       E.  $\frac{5}{4}$

7. The  $x$  coordinate of the solution to the system of equations  $\begin{cases} 4x + 3y = 9 \\ 4x - 3y = 7 \end{cases}$  is:

A.  $x = 16$       B.  $x = 4$       C.  $x = 2$       D.  $x = \frac{1}{3}$       E.  $x = \frac{1}{4}$

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8.  $\frac{x^2 - 16}{x^2 - 8x + 16} =$
- A.  $\frac{x + 4}{x - 4}$       B. 0      C.  $\frac{1}{8x}$       D. 1      E.  $\frac{16}{8x + 16}$
9. A student has 42 coins worth a total of \$5.90. Each coin is either a nickel (5 cents) or a quarter (25 cents). If  $x$  is the number of nickels, then  $x$  can be determined from the equation
- 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. One of the factors of  $14x^2 + x - 3$  is
- A.  $7x - 3$       B.  $14x - 1$       C.  $2x - 1$       D.  $7x + 3$       E.  $7x + 1$
11.  $\sqrt[10]{80a^8b^{12}}$
- A.  $4a^4b^6$       B.  $40a^4b^6$       C.  $4a^6b^{10}\sqrt[10]{5}$       D.  $4a^4b^6\sqrt[10]{5}$       E.  $40a^8b^{12}$
12. 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. 9600      B. 1920      C. 384      D. 150      E. 16
13. Which of the following points lies on the line  $3x + 4y + 5 = 0$ ?
- A.  $(4; \frac{11}{3})$       B.  $(4; \frac{7}{4})$       C.  $(0; \frac{5}{4})$       D.  $(4; -7)$       E.  $(4; \frac{17}{4})$

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Answers:

1. C      2. D      3. C      4. D      5. A      6. E  
7. C      8. A      9. A      10. A      11. D      12. C  
13. B