



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

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

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. $\frac{ab}{a + 3}$

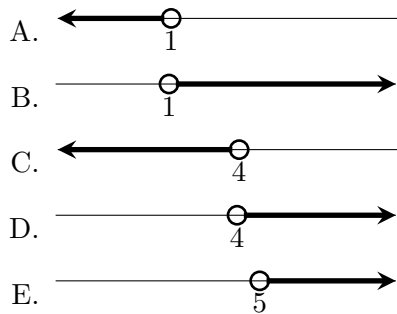
3. $\frac{10}{\sqrt{15x}}$

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

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

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

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. $x = \frac{1}{4}$

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 (five cents) or a quarter (twenty-five 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. $\sqrt{80a^8b^{12}}$
- A. $4a^4b^6$ B. $40a^4b^6$ C. $4a^6b^{10}\sqrt{5}$ D. $4a^4b^6\sqrt{5}$ 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. $\left(-4, \frac{11}{3}\right)$ B. $\left(-4, \frac{7}{4}\right)$ C. $\left(0, \frac{5}{4}\right)$ D. $(4, -7)$ E. $\left(4, \frac{17}{4}\right)$

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