

MDTP Intermediate Algebra Diagnostic Sample Test

Calculators are not allowed for the test.

1. $\frac{6.4 \times 10^{-3}}{0.8 \times 10^6}$

- (A) 8.0×10^9 (B) 8.0×10^{-9} (C) 8.0×10^{-8} (D) 8.0×10^8 (E) 8.0×10^{-2}
-

2. $\frac{x^2 - 3x}{x + 3} \cdot \frac{x^2 + 5x + 6}{x^2 - x - 6}$

- (A) x (B) 1 (C) $\frac{x(x+2)}{(x-2)}$ (D) $\frac{x(x-3)}{x+3}$ (E) $\frac{x(x-3)(x+2)}{(x+3)(x-2)}$
-

3. The inequality $3x < 4 + 5x$ is equivalent to

- (A) $x < -2$ (B) $x < -1$ (C) $x > -2$ (D) $x > -1$ (E) $x < 0$
-

4. $\frac{x^{2k+1}}{x^k}$

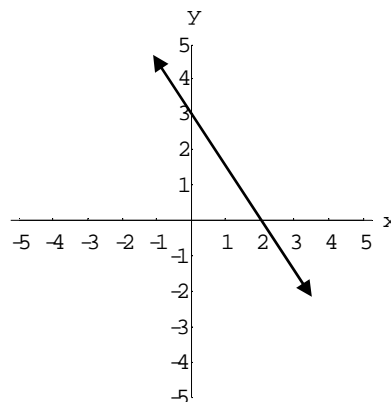
- (A) $x^{(2k+1)/k}$ (B) x^{k+1} (C) x^{k-1} (D) x^{3k+1} (E) x^{k^2+1}
-

5. $\frac{1}{\sqrt{x} - \sqrt{5}} =$

- (A) $\frac{\sqrt{x} + \sqrt{5}}{x - 5}$ (B) $\frac{\sqrt{x} - \sqrt{5}}{x - 5}$ (C) $\frac{1}{\sqrt{x} + \sqrt{5}}$ (D) $\frac{\sqrt{5x}}{x - 5}$ (E) $\frac{\sqrt{x} + \sqrt{5}}{x - 2\sqrt{x} + 5}$
-

6. What is the equation of the line shown in the figure to the right?

- (A) $2x + 3y = 6$ (B) $2x - 3y = 6$
(C) $3x + 2y = 6$ (D) $3x - 2y = 6$
(E) $-3x - 2y = 6$



7. $3x + 2[4(x - 3y) - y]$

- (A) $20x - 65y$ (B) $11x + 24y$ (C) $11x - 26y$ (D) $11x - 8y$ (E) $-13x - 2y$
-

8. $\sqrt{6}\sqrt{12} =$

- (A) $3\sqrt{2}$ (B) $2\sqrt{3}$ (C) $6\sqrt{2}$ (D) $2\sqrt{6}$ (E) $\sqrt{72}$
-

9. The distance between the points $(4, -2)$ and $(-2, -3)$ is

- (A) $\sqrt{5}$ (B) $\sqrt{29}$ (C) $\sqrt{37}$ (D) $2 + \sqrt{5}$ (E) 3
-

10. For the system of equations $\begin{cases} x + y = 5 \\ 2x - y = 4 \end{cases}$, the value of y is

- (A) -1 (B) 0 (C) 1 (D) 2 (E) 3
-

11. One of the roots of $x^2 - 4x = 12$ is

- (A) -6 (B) -2 (C) 2 (D) 3 (E) 12
-

12. $\log_3\left(\frac{1}{9}\right) =$

- (A) -2 (B) 2 (C) $\sqrt[3]{3}$ (D) $\frac{1}{2}$ (E) -3^9
-

13. If $f(x) = x^2 + 3x - 1$, then $f(a+1) =$

- (A) $a^2 + 3a - 1$ (B) $a^2 + 3a + 3$ (C) $a^2 + 3a$ (D) $a^2 + 5a + 1$ (E) $a^2 + 5a + 3$
-

14. If $2x^2 - 3x - 1 = 0$, then $x =$

- (A) $\frac{3 \pm \sqrt{7}}{4}$ (B) $\frac{-3 \pm \sqrt{7}}{4}$ (C) $\frac{-3 \pm \sqrt{17}}{4}$ (D) $\frac{3 \pm \sqrt{17}}{2}$ (E) $\frac{3 \pm \sqrt{17}}{4}$
-

15. $\frac{x}{x+2} + \frac{2}{x-2} =$

- (A) $\frac{1}{x-2}$ (B) $\frac{x+2}{x-2}$ (C) $\frac{x^2+4}{x^2-4}$ (D) $\frac{x^2}{x^2-4}$ (E) $\frac{x+2}{2x}$
-

KEY- MDTP Intermediate Algebra Diagnostic Sample Test

Question	Correct Answer	Topic
1	B	ELEM
2	A	RATL
3	C	LINR
4	B	EXPR
5	A	EXPR
6	C	GRPH
7	C	ELEM
8	C	EXPR
9	C	GRPH
10	D	LINR
11	B	QUAD
12	A	LOGF
13	E	LOGF
14	E	QUAD
15	C	RATL

ELEM	Elementary Operations
EXPR	Exponents and Radicals
GRPH	Graphing and Coordinate Geometry
LINR	Linear Equations and Inequalities
LOGF	Logarithms and Functions
QUAD	Quadratic Polynomials, Equations, and Inequalities
RATL	Rational Expressions