

KYOTE College Algebra Practice Exam 4

1. Simplify.  $(\frac{7x}{x^{-4}})^{-2}$

- A)  $\frac{1}{49}x^6$      B)  $\frac{1}{49x^{10}}$      C)  $\frac{1}{49x^6}$   
 D)  $7x^6$      E)  $\frac{7}{x^{10}}$

2. One solution of  $2x^2 - x - 4 = 0$  is

- A)  $\frac{1+\sqrt{33}}{2}$      B)  $\frac{1-\sqrt{31}}{4}$      C)  $\frac{1+\sqrt{33}}{4}$   
 D)  $\frac{-1+\sqrt{33}}{4}$      E)  $\frac{-1-\sqrt{31}}{2}$

3. The line parallel to  $4x + y = 3$  and passing through  $(3, 2)$  has equation

- A)  $y = 4x - 10$      B)  $y = -4x + 14$      C)  $y = 4x - 5$   
 D)  $y = -4x - 10$      E)  $y = -4x + 11$

4. Find  $\frac{x^2}{x-y}$  when  $x = -4$  and  $y = -3$

- A)  $\frac{16}{7}$      B) 16     C)  $-\frac{16}{7}$   
 D) -16     E)  $-\frac{4}{3}$

5. If  $x$  and  $y$  are positive numbers, then  $\sqrt{12(x^5y^4)^3} = ?$

- A)  $2x^7y^6\sqrt{3x}$      B)  $\pm 2x^7y^6\sqrt{3x}$      C)  $2\sqrt{3}x^5y^4$   
 D)  $\pm 6x^5y^4\sqrt{x^5y^4}$      E)  $6x^5y^4\sqrt{x^5y^4}$

6. Solve  $3x = 7y(1 - 2x)$  for  $x$ .

- A)  $\frac{7}{3}y + \frac{-2}{3}x$      B)  $\frac{7y}{3+14y}$      C)  $\frac{7}{5}y$   
 D)  $\frac{7y}{3-14y}$      E)  $3 + \frac{14}{3}xy$

7. Which of the following equations has the same solution as  $-10x + 2 = -2x + 3$ ?

A)  $-12x = -5$      B)  $-12x = 1$      C)  $-8x = -5$

D)  $-8x = -1$      E)  $-8x = 1$

8. What is the  $y$ -coordinate of the point where the lines  $-x + 7y - 15 = 0$  and  $x = -3$  intersect?

A)  $\frac{12}{7}$      B)  $\frac{18}{7}$      C)  $-\frac{18}{7}$

D)  $\frac{7}{12}$      E)  $-\frac{12}{7}$

9. A rectangle has length 25 inches and width 20 inches. What is the length of a diagonal from one corner to the opposite corner, rounded to the nearest inch?

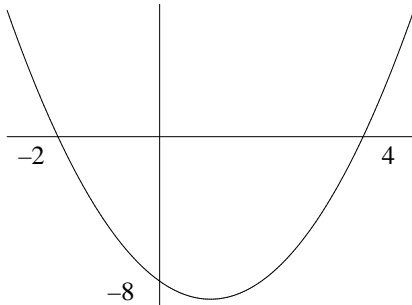
A) 34     B) 33     C) 32

D) 35     E) 36

10. Which of the following is the equation of the parabola whose graph is shown below?

A)  $y = (x - 4)(x + 2) - 16$      B)  $y = 2(x + 4)(x - 2)$      C)  $y = (x - 4)(x + 2)$

D)  $y = 2(x - 4)(x + 2)$      E)  $y = (x + 4)(x - 2) - 16$



11. Simplify.  $-9(x - 8y + z) - (x - y - 4z + 6)$

A)  $-10x + 73y - 5z + 6$      B)  $-10x + 73y - 5z - 6$      C)  $-8x + 73y - 5z + 6$

D)  $-8x + 71y - 5z - 6$      E)  $-8x + 71y + 13z - 6$

12. If  $f(x) = \sqrt{2x - 3}$ , and  $f(a) = 5$ , then  $a = ?$

A) 11     B) 4     C) 25

D) 14     E) 1

13. Expand and simplify.  $x^2(x^3 - 6)^2$

A)  $x^8 - 6x^5 + 36x^2$      B)  $x^{10} - 12x^7 + 36x^4$      C)  $x^{10} + 36x^4$

D)  $x^8 - 12x^5 + 36x^2$      E)  $x^8 + 36x^2$

14. Simplify.  $\frac{20x^2y^6 - 5xy^2}{5xy^2}$

A)  $20x^2y^6 - 1$      B)  $4xy^4 - 1$      C)  $4xy^3 - 5xy^2$

D)  $20x^2y^6$      E)  $4xy^3 - 1$

15. Simplify.  $(-2x^4)^3(-3x^2)^2$

A)  $18x^{16}$      B)  $-72x^{11}$      C)  $-72x^{16}$

D)  $18x^{11}$      E)  $72x^{16}$

16. Simplify.  $\frac{5}{z^3w^2} - \frac{2}{zw^7}$

A)  $\frac{5w^5 - 2z^2}{z^3w^7}$      B)  $\frac{5w^5 - 2z^2}{z^4w^9}$      C)  $\frac{3}{z^3w^7}$

D)  $\frac{3}{z^4w^9}$      E)  $\frac{3}{z^3w^2 - zw^7}$

17. A rectangular field is enclosed by 200 feet of fencing. If the length of the field is 8 feet more than its width, what is its length, in feet?

A) 46     B) 54     C) 96

D) 50     E) 104

18. One solution of  $|11x + 7| = 3$  is

- A)  $\frac{-10}{11}$     B)  $\frac{-7}{10}$     C)  $\frac{-11}{10}$   
 D)  $\frac{11}{10}$     E)  $\frac{10}{11}$

19. Solve  $-5x < x + 3$  and express the solution in interval notation.

- A)  $(-\infty, \frac{-4}{3})$     B)  $(-\infty, \frac{-1}{2})$     C)  $(\frac{-3}{4}, \infty)$   
 D)  $(-2, \infty)$     E)  $(\frac{-1}{2}, \infty)$

20. What is  $F$  in the formula  $L = \frac{7}{5}F - 3$  when  $L = 4$ ?

- A) 5    B)  $\frac{7}{5}$     C)  $\frac{49}{5}$   
 D)  $\frac{41}{7}$     E)  $\frac{5}{7}$

21. One of the factors of  $3x^2 + 10x - 8$  is

- A)  $3x - 2$     B)  $3x + 2$     C)  $x - 4$   
 D)  $x - 8$     E)  $3x + 4$

22. If a line has slope  $-2$  and passes through the point  $(2, 3)$ , what is the  $y$ -coordinate of the point on the line whose  $x$ -coordinate is 4?

- A) 0    B)  $-4$     C)  $-2$   
 D)  $-1$     E)  $-3$

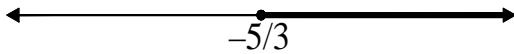
23. A boy has  $x$  quarters, twice as many dimes as quarters, and 8 more nickels than quarters in his piggy bank. How much, in cents, is in his bank?

- A)  $4x + 8$     B)  $70x + 8$     C)  $70x + 40$   
 D)  $50x + 8$     E)  $50x + 40$

24. Which of the following functions has a domain set corresponding to bold portion of the number line below?

A)  $\sqrt{5x-3}$      B)  $\sqrt{5x+3}$      C)  $\sqrt{5-3x}$

D)  $\sqrt{3-5x}$      E)  $\sqrt{3x+5}$



25. Find  $\sqrt{\frac{x^3}{y^2}}$  when  $x = 2$  and  $y = -7$ .

A)  $\frac{2\sqrt{2}}{7}$      B)  $\frac{4}{49}$      C)  $\frac{2\sqrt{2}}{49}$

D)  $\frac{-2\sqrt{2}}{7}$      E)  $\pm \frac{2\sqrt{2}}{7}$

## Key: KYOTE12CART4

1) $\diamond$ B	2) $\diamond$ C	3) $\diamond$ B	4) $\diamond$ D	5) $\diamond$ A
6) $\diamond$ B	7) $\diamond$ E	8) $\diamond$ A	9) $\diamond$ C	10) $\diamond$ C
11) $\diamond$ B	12) $\diamond$ D	13) $\diamond$ D	14) $\diamond$ B	15) $\diamond$ C
16) $\diamond$ A	17) $\diamond$ B	18) $\diamond$ A	19) $\diamond$ E	20) $\diamond$ A
21) $\diamond$ A	22) $\diamond$ D	23) $\diamond$ E	24) $\diamond$ E	25) $\diamond$ A

## Standards Table

Standard	Problems	Max	Score
KYOTECA.01.3:	4,25	2	
KYOTECA.02.3:	11,13	2	
KYOTECA.03.3:	1,15	2	
KYOTECA.04.3:	5	1	
KYOTECA.05.3:	21	1	
KYOTECA.06.3:	16	1	
KYOTECA.07.3:	14	1	
KYOTECA.08.3:	7,20	2	
KYOTECA.09.3:	6	1	
KYOTECA.10.3:	19	1	
KYOTECA.11.3:	2	1	
KYOTECA.12.3:	18	1	
KYOTECA.13.3:	8	1	
KYOTECA.14.3:	17,23	2	
KYOTECA.15.3:	9	1	
KYOTECA.16.3:	3,22	2	
KYOTECA.17.3:	10	1	
KYOTECA.18.3:	12,24	2	

## Description of Standards

1. KYOTECA.01.3: Evaluate algebraic expressions at specified values of their variables using signed numbers, rational exponents, order of operations and parentheses.
2. KYOTECA.02.3: Add, subtract and multiply polynomials.
3. KYOTECA.03.3: Simplify algebraic expressions involving integer exponents.
4. KYOTECA.04.3: Simplify algebraic expressions involving square roots and cube roots.
5. KYOTECA.05.3: Factor a polynomial in one or more variables by factoring out its greatest common factor. Factor a trinomial. Factor the difference of squares.
6. KYOTECA.06.3: Add, subtract, multiply and divide simple rational expressions.
7. KYOTECA.07.3: Simplify a rational expression.
8. KYOTECA.08.3: Solve a linear equation.
9. KYOTECA.09.3: Solve a multivariable equation for one of its variables.
10. KYOTECA.10.3: Solve a linear inequality in one variable.

11. KYOTECA.11.3: Solve a quadratic equation.
12. KYOTECA.12.3: Solve an equation involving a radical, a rational or an absolute value expression.
13. KYOTECA.13.3: Solve a system of two linear equations in two variables.
14. KYOTECA.14.3: Solve problems that can be modeled using a linear or quadratic equation or expression.
15. KYOTECA.15.3: Solve geometry problems using the Pythagorean theorem and the properties of similar triangles.
16. KYOTECA.16.3: Understand and apply the relationship between the properties of a graph of a line and its equation.
17. KYOTECA.17.3: Find the intercepts and the graph of a parabola given its equation. Find an equation of a parabola given its graph.
18. KYOTECA.18.3: Evaluate a function at a number in its domain. Find the domain of a rational function or the square root of a linear function.