

KYOTE College Algebra Practice Exam 1

1. Which of the following equations has the same solution as  $5x + 8 = x - 9$ ?

A)  $4x = -1$      B)  $4x = 17$      C)  $6x = -17$

D)  $6x = 17$      E)  $4x = -17$

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

A)  $8x^{11}$      B)  $8x^{16}$      C)  $-32x^{16}$

D)  $32x^{16}$      E)  $-32x^{11}$

3. If  $f(x) = \sqrt{7-x}$ , then which of the following sets is the domain of this function?

A)  $x \leq 7$      B)  $x \neq 7$      C)  $x \geq 0$

D)  $x \neq 0$      E)  $x \geq 7$

4. One of the factors of  $3x^2 + 8x - 35$  is

A)  $3x - 7$      B)  $3x + 7$      C)  $x - 35$

D)  $3x + 5$      E)  $x - 5$

5. One solution of  $3x^2 + 7x - 6 = 0$  is

A)  $\frac{-2}{3}$      B)  $\frac{3}{2}$      C) 3

D) -6     E)  $\frac{2}{3}$

6. Solve  $\frac{1}{x-1} - \frac{2}{7} = 3$  for  $x$ .

A)  $\frac{26}{23}$      B)  $\frac{-12}{23}$      C)  $\frac{23}{26}$

D)  $\frac{30}{23}$      E)  $\frac{23}{30}$

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

- A)  $9x^2 - 36xy - 36y^2$      B)  $9x^2 + 36y^2$      C)  $9x^2 - 36xy + 36y^2$   
 D)  $9x^2 - 18xy + 36y^2$      E)  $9x^2 - 36y^2$

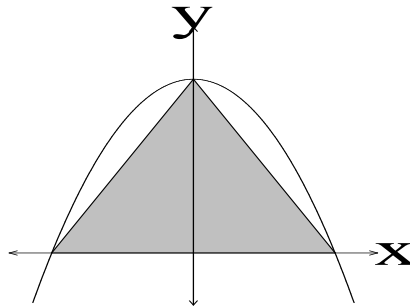
8. The line parallel to  $2x + y = 5$  and passing through  $(5, 4)$  has equation

- A)  $y = 2x - 6$      B)  $y = -2x + 14$      C)  $y = 2x - 3$   
 D)  $y = -2x + 13$      E)  $y = -2x - 6$

9. Simplify.  $\frac{x^2 - x - 30}{x^2 - 12x + 36}$

- A)  $\frac{x+6}{x-6}$      B)  $\frac{x+5}{x-6}$      C)  $\frac{x-30}{x-6}$   
 D)  $\frac{x+30}{x-6}$      E)  $\frac{x-5}{x-6}$

10. The vertices of a triangle consist of the three points where the parabola  $y = 7 - x^2$  intersects the coordinate axes as shown. What is the area of this triangle?

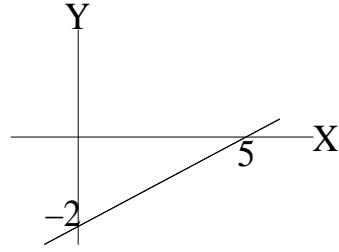


- A)  $14\sqrt{7}$      B)  $\frac{7\sqrt{7}}{2}$      C) 98  
 D)  $7\sqrt{7}$      E) 49

11. Simplify.  $(-3x^{-5})^2(2x^3)^{-2}$

- A)  $\frac{-6}{x^{16}}$      B)  $\frac{9}{4x^{16}}$      C)  $\frac{9}{4x^{12}}$   
 D)  $\frac{-9}{4x^{16}}$      E)  $\frac{-6}{x^{12}}$

12. Which of the following is an equation of the line whose graph is shown below?



- A)  $y = -2 + \frac{2}{5}x$      B)  $y = \frac{2}{5}x$      C)  $y = 5 + \frac{5}{2}x$   
 D)  $y = 5 + \frac{2}{5}x$      E)  $y = -2 + \frac{5}{2}x$

13. If  $x$  and  $y$  satisfy both  $9x + 2y = 8$  and  $7x + 2y = 4$ , then  $y = ?$ .

- A) 9     B) 2     C) 18  
 D) -5     E) -10

14. Solve  $-7x < x + 7$  and express the solution in interval notation.

- A)  $(\frac{-7}{6}, \infty)$      B)  $(\frac{-7}{8}, \infty)$      C)  $(-\infty, \frac{-7}{8})$   
 D)  $(\frac{-8}{7}, \infty)$      E)  $(-\infty, \frac{-6}{7})$

15. If the hypotenuse of a right triangle has length 9 feet and one of the other sides has length 2 feet, what is the length of the remaining side, in feet?

- A) 7     B)  $\sqrt{11}$      C)  $\sqrt{7}$   
 D)  $\sqrt{85}$      E)  $\sqrt{77}$

16. Solve  $R = \frac{4}{7}T + \frac{-36}{7}$  for  $T$ .

- A)  $\frac{4}{7}R + 9$      B)  $\frac{7}{4}R + \frac{63}{4}$      C)  $\frac{4}{7}R + \frac{36}{7}$   
 D)  $\frac{7}{4}R - 9$      E)  $\frac{7}{4}R + 9$

17. Simplify.  $\frac{8x}{x^2 + 9x + 20} + \frac{6}{x + 4}$

A)  $\frac{8x + 6}{x^2 + 10x + 24}$      B)  $\frac{8x + 6}{x^2 + 9x + 20}$      C)  $\frac{14x}{x^2 + 9x + 20}$

D)  $\frac{14x + 30}{x^2 + 9x + 20}$      E)  $\frac{14x + 6}{x^2 + 9x + 20}$

18. If  $x$  and  $y$  are positive numbers, then  $\sqrt{24x^{10}y^{-6}}$

A)  $\pm \frac{2x^8\sqrt{6}}{y^4}$      B)  $\pm \frac{2x^5\sqrt{6}}{y^3}$      C)  $-2x^5y^3\sqrt{6}$

D)  $\frac{2x^5\sqrt{6}}{y^3}$      E)  $\frac{2x^8\sqrt{6}}{y^4}$

19. If  $f(x) = 2x + 9$ , and  $f(a) = 7$ , then  $a = ?$

A) 9     B) 23     C) -1

D) 7     E) 8

20. Find  $12(x)^{2/3}$  when  $x = -8$ .

A) 64     B) 48     C) -48

D) 256     E) -64

21. A rectangular field is enclosed by 320 feet of fencing. If the length of the field is 6 feet more than its width, what is its length, in feet?

A) 80     B) 83     C) 77

D) 157     E) 163

22. Find  $\frac{(x - (1 - 4x))}{x}$  when  $x = -5$ .

A)  $\frac{26}{5}$      B) -21     C) 19

D)  $\frac{-26}{5}$      E)  $\frac{-14}{5}$

**23.** The surface area  $S$  of a cylinder is  $S = 2\pi r^2 + 2\pi r h$  where  $r$  is the base radius and  $h$  is the height. What is  $h$ , in inches, when  $S$  is 175 square inches and  $r$  is 6 inches?

- A)  $\frac{175 - 864\pi^2}{12\pi}$      B)  $\frac{175 + 864\pi^2}{12\pi}$      C)  $\frac{175 + 72\pi}{12\pi}$   
 D)  $\frac{25}{12\pi}$      E)  $\frac{175 - 72\pi}{12\pi}$

**24.** A truck leaves an intersection going 42 miles per hour. Half an hour later, a car going 62 miles per hour follows the truck. If  $x$  is the time, in hours, required for the car to catch the truck, then which of the following equations can be used to solve for  $x$ ?

- A)  $42x + 21 = 62x$      B)  $42x + \frac{1}{2} = 62x$      C)  $42x + 62 = 62x$   
 D)  $42x + 42 = 62x$      E)  $42x + 30 = 62x$

**25.** Subtract  $x^3 - 5x^2 + 1$  from  $x^2 - x - 4$ .

- A)  $-x^3 + 6x^2 - x - 3$      B)  $x^3 - 4x^2 + x + 5$      C)  $x^3 - 6x^2 + x + 5$   
 D)  $-x^3 + 6x^2 - x - 5$      E)  $-x^3 - 4x^2 - x - 5$