

1. Simplify the following expression:

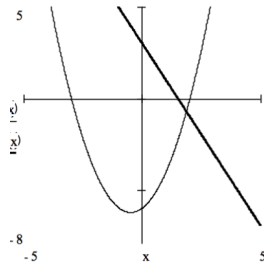
$$\frac{x^2 - 16}{x^3 + 64} \cdot \frac{2x^2 - 8x + 32}{3x^2 - 11x + 4}$$

2. The solution to the system below is:

$$\begin{aligned} x - 3y - z &= -9 \\ -2x + y + 2z &= 3 \\ 2x + y + 2z &= 8 \end{aligned}$$

- (1) (1, -3, 1)      (3) (1, 3, 1)  
 (2) (-1, 3, 1)      (4) (1, 3, -1)

3. To check a problem, Katherine graphs a system of two equations on her calculator to find the solution set. Her result is shown below. One equation was quadratic, and the other linear. She can be sure that the number of solutions in the solution set is;



- (1) 1      (2) 2      (3) 3      (4) 4

4. Solve for the value(s) of x that satisfy the following equation:

$$\frac{5}{2x-2} = \frac{5}{x^2-1} + \frac{5}{3x-3}$$

5. What value of x makes the expression  $\frac{x+4}{x-3}$  undefined?

- (1) -4      (2) -3      (3) 3      (4) 0

6. For the two functions  $y = -2(x + 5)^2 + q$  and  $y = 2(x + 5)^2 - q$ ,  $q > 0$ , which of the following statements is true?

- (1) It is not possible for them to intersect.  
 (2) They must intersect in only one location.  
 (3) They must intersect in two locations.  
 (4) They are the same function, so they coincide.

7. In solving the quadratic equation  $0 = 2(x + 5)^2 - 16$ , a student could graph two equations and find the intersection points. If one of the equations is  $Y_1 = (x + 5)^2$ , then the other is

- (1)  $Y_2 = -16$       (3)  $Y_2 = 16$   
(2)  $Y_2 = -8$       (4)  $Y_2 = 8$

8. Find the missing expression:

$$\frac{13x+7}{x+2} + \frac{?}{x+2} = \frac{16x+1}{x+2}$$

- (1)  $29x - 6$       (3)  $29x - 8$   
(2)  $3x + 6$       (4)  $3x - 6$

9. Solve the following nonlinear system of equations:

$$\begin{aligned} 2y - 1 &= x^2 - x \\ x^2 + 2x + y - 3 &= 0 \end{aligned}$$