

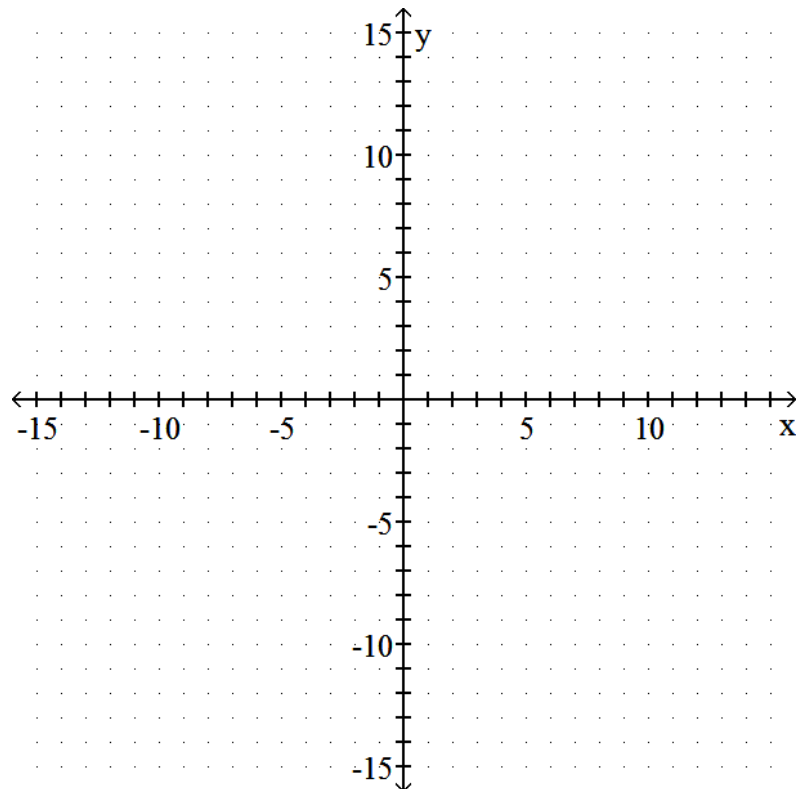
Name(s) \_\_\_\_\_

Answer true or false.

- 1) A system of two linear equations in two variables can have exactly two solutions.
- 2) If the two equations in a system of linear equations are added and the result is  $8 = 0$ , the system has no solution.
- 3) If the two equations in a system of linear equations are added and the result is  $6x = 0$ , the system has no solution.

Solve the system by graphing.

4) 
$$\begin{cases} x - y = -2 \\ 3x - y = -10 \end{cases}$$



Solve the system of equations .

$$5) \begin{cases} 4x - 3y = -23 \\ y = x + 6 \end{cases}$$

$$6) \begin{cases} \frac{x - 2}{2} = \frac{2 - y}{4} \\ \frac{5 - 2x}{3} = \frac{y}{2} \end{cases}$$

Solve the problem by writing and using a system of linear equations.

7) Two numbers have a sum of 119 and a difference of 55. Find the numbers.

8) Find the amount of a 11% saline solution a lab assistant should add to 100 cc (cubic centimeters) of a 21% saline solution in order to have a 16% solution.

Find the domain of the rational function.

$$9) \quad g(x) = \frac{x^2 - 25}{x^2 - 15x + 54}$$

Simplify the rational expression.

$$10) \quad \frac{2m^3 - 2m^2 - 12m}{m^2 - 5m + 6}$$

Perform the indicated operation and simplify if possible.

$$11) \quad \frac{y^2 - 9y + 18}{3y + 9} \cdot \frac{y + 3}{4y - 24}$$

$$12) \quad \frac{2x}{x - 4} - \frac{x + 3}{x - 4}$$

$$13) \frac{7a}{a^2 + 5a + 4} - \frac{2}{a + 4}$$

$$14) \frac{18}{x^2 - 1} + \frac{9}{x + 1}$$

$$15) \frac{x + 6}{x^2 - 5x + 6} + \frac{2x - 5}{x^2 - 2x - 3}$$

Solve the equation.

$$16) \quad \frac{4}{y} + 7 = 5$$

$$17) \quad \frac{7}{y-8} = \frac{5}{y+8}$$

$$18) \quad \frac{3}{a-3} = \frac{a}{a-3} - 5$$

$$19) \quad \frac{2}{x^2-9} = \frac{8}{x+3} - \frac{3}{x-3}$$

Solve for w

$$20) \quad \frac{w + 2}{w^2 - 16} + \frac{w - 3}{w^2 - 2w - 8} = \frac{2w - 3}{w^2 + 6w + 8}$$

Solve.

21) Frank can type a report in 4 hours and James takes 6 hours. How long will it take the two of them typing together?

22) A plane flies 450 miles with the wind and 310 miles against the wind in the same length of time. If the speed of the wind is 21 mph, what is the speed of the plane in still air?

- 1) False 3 possible solutions
- 2) True parallel lines
- 3) False  $x = 0$
- 4)  $(-4, -2)$   $y = x + 2$  ;  $y = 3x + 10$
- 5)  $(-5, 1)$
- 6)  $(4, -2)$
- 7)  $87 + 32$  not a point
- 8)  $50 \text{ ml @ } 57\%$  ;  $70 \text{ ml @ } 93\%$
- 9)  $x \neq 9, 6$
- 10)  $\frac{2m(m+2)}{m-2}$
- 11)  $\frac{y-3}{12}$
- 12)  $\frac{x-3}{x-4}$
- 13)  $\frac{5a-2}{(a+1)(a+4)}$
- 14)  $\frac{9}{x-1}$
- 15)  $\frac{3x^2 - 2x + 16}{(x-3)(x-2)(x+1)}$
- 16)  $y = -2$
- 17)  $y = -48$
- 18)  $a \neq 3$  but is extraneous so No solution
- 19)  $x = 7$
- 20)  $w = \frac{5}{4}$
- 21)  $2\frac{2}{3} \text{ hr}$
- 22)  $114 \text{ mph}$