

# Algebra Test 1 Spring 2020

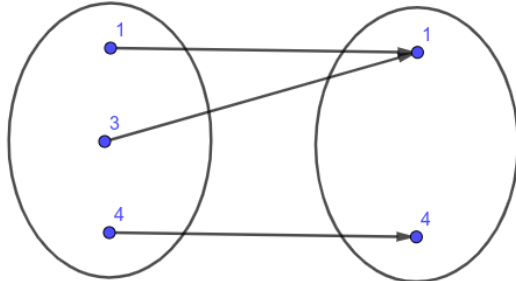
**Work in your notebook. Show all work for credit!**

1. For each of the following statements, say if it is true or false, if false give a counterexample:
  - (a) If you have a quarter, then you have 25 cents.
  - (b) If  $x > 3$ , then  $x = 7$ .
2. Verify that the operations shown below inverses:
  - (a)  $(4 + 7) - 7$
  - (b)  $(\sqrt{49})^2$
3. Solve the equation for  $x$ :  $-8x = 16$
4. Solve the equation for  $x$ :  $\frac{1}{3}x = 5$
5. Solve the equation for  $x$ :  $6x + 4 = 16$
6. Solve the equation for  $x$ :  $-2x - 3 = 4x - 5$
7. Solve the equation for  $x$ :  $3(2x + 4) = -6 + 12x$
8. You have a 40% acid solution of 20 liters. How much water should you add to get a 10% acid solution?
9. Solve for  $y$ :  $4x + 2y = 8$
10. Which quadrant of the Cartesian coordinate plane contains the point (3, -5)?

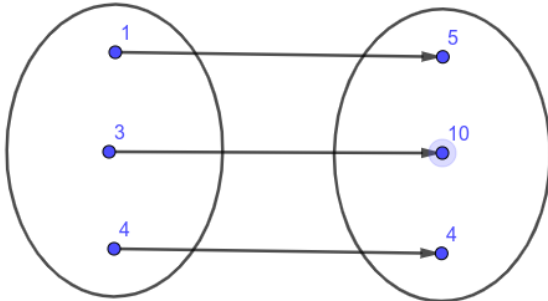
11. Graph two points  $A = (5, 2)$  and  $B = (-3, 2)$  on the coordinate plane and measure the length of the segment between them.
12. True or False:  $(2, 8)$  is a solution for  $2x + y = 16$
13. Solve for  $y$  when  $x = -2$  in the equation  $-3x = 2y + 8$
14. If  $f(x) = 3x - 4$ , find  $f(5)$ .
15. If  $f(x) = x^2 - x + 1$ , find  $f(2)$
16. For the equation of the line  $y = 2x - 6$  do the following:
  - (a) Find the  $x$ -intercept
  - (b) Find the  $y$ -intercept
  - (c) Plot the graph
17. For the relation given by  $\{(0, 2), (1, 3), (4, 5)\}$ :
  - (a) What is the Domain?
  - (b) What is the Range?
  - (c) Is it a function?

18. For each of the relations shown below tell me the Domain, Range, and Whether or not it is a function.

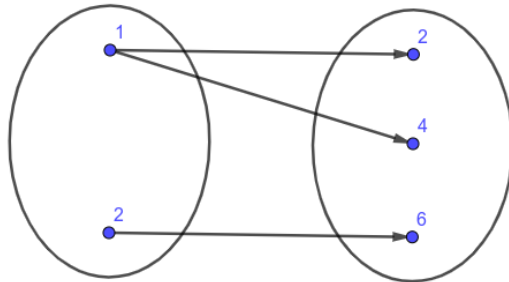
(a)



(b)



(c)



19. (Extra Credit): Give an example of a line that does not have an  $x$ -intercept.

20. (Extra Credit): What is the inverse function of the squaring function?