

1. Solve the following equation for x :

$$\frac{x-1}{2} + \frac{x-4}{3} = \frac{5}{6}$$

- a) $x = \frac{19}{5}$
- b) $x = \frac{16}{5}$
- c) $x = 5$
- d) The equation is an identity.

2. Solve the following equation for x :

$$0.12(1 - 3x) + 0.36(x - 2) = 0.56.$$

- a) $x = -0.6$
- b) $x = 1.16$
- c) The equation is an identity.
- d) The equation is a contradiction.

3. Find the solution set for the following inequality.

$$\frac{a}{8} - \frac{7}{4} \leq \frac{a}{4} - 1$$

- a) $(-\infty, 6]$
- b) $(-\infty, -6]$
- c) $[-6, \infty)$
- d) $(-6, \infty)$

4. Find the solution set for the following inequality.

$$-10 \leq \frac{3p+1}{2} < 5$$

- a) $(-7, 3]$
- b) $[-7, 3)$
- c) $\left[-\frac{19}{3}, \frac{11}{3}\right)$
- d) $\left(-\frac{19}{3}, \frac{11}{3}\right]$

5. What is the solution set of $2|3x - 1| = 8$?

- a) $\left\{-1, \frac{5}{3}\right\}$
- b) $\left\{-\frac{7}{3}, 3\right\}$
- c) $\left\{-\frac{5}{3}, 1\right\}$
- d) $\left\{-3, \frac{7}{3}\right\}$

6. What is the solution set of $|2 - 3x| \leq 8$?

- a) $\left(-2, \frac{10}{3}\right)$
- b) $\left(-\frac{10}{3}, 2\right)$
- c) $\left[-2, \frac{10}{3}\right]$
- d) $\left[-\frac{10}{3}, 2\right]$

7. What is the solution set of $|2x + 1| - 3 > 2$?

- a) $(-\infty, -3) \cup (2, \infty)$
- b) $(-3, 2)$
- c) $(-\infty, -2) \cup (2, \infty)$
- d) $(-\infty, -6) \cup (4, \infty)$

8. At 10:00 A.M., Ray left his house to drive to the airport, at an average speed of 40 mph. At 11:00 A.M., his girlfriend, Amy, left Ray's house and followed his path at an average speed of 60 mph. If Amy and Ray arrived at the airport at exactly the same time, how far is it from Ray's house to the airport?

- a) 80 miles
- b) 90 miles
- c) 120 miles
- d) 140 miles

9. A coffee shop owner blends a gourmet brand of coffee with a cheaper brand. The gourmet coffee usually sells for \$10.00 per pound. The cheaper brand sells for \$5.00 per pound. How much of each type should be mixed in order to have 20 pounds of coffee that is worth \$6.50 per pound?

- a) 4 pounds of gourmet, 16 pounds of cheaper
- b) 12 pounds of gourmet, 8 pounds of cheaper
- c) 10 pounds of gourmet, 10 pounds of cheaper
- d) 6 pounds of gourmet, 14 pounds of cheaper

10. Find the domain and range of the relation

$$\{(1, 2), (3, 2), (3, 1), (1, 3)\}.$$

- a) Domain: $\{1, 3\}$, Range: $\{1, 2, 3\}$
- b) Domain: $\{1, 2, 3\}$, Range: $\{1, 3\}$
- c) Domain: $\{1\}$, Range: $\{3\}$
- d) Domain: $\{1, 2, 3\}$, Range: $\{1, 2, 3\}$

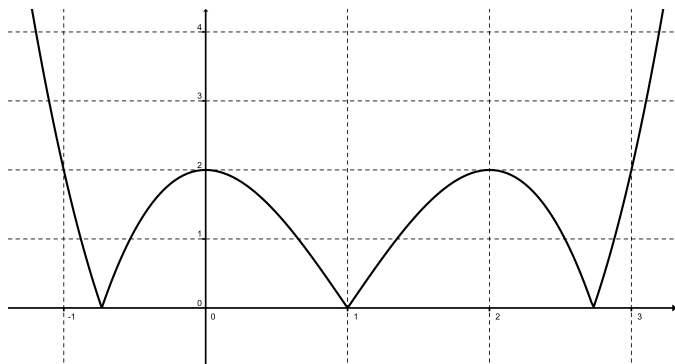
11. Which of the following relations is NOT a function?

- a) $\{(3, 4), (1, 4), (8, 5), (9, 5)\}$
- b) $\{(3, 4), (5, 6), (8, 5), (10, 5)\}$
- c) $\{(3, 4), (-3, 1), (5, 5), (2, 5)\}$
- d) $\{(3, 4), (5, 4), (8, 5), (3, 5)\}$

12. Evaluate the function $f(x) = 3 + \sqrt{x - 5}$ at $x = 9$.

- a) 1
- b) 5
- c) 6
- d) 7

13. From the following graph of the function f , find $f(3)$.



- a) -2
- b) 1
- c) 3
- d) 2

14. Which of the following equations does NOT define a function of x ?

- a) $f(x) = 101 - 102x$
- b) $y = -2x + 3$
- c) $x = 4$
- d) $y = -\frac{1}{2}$

15. What is the slope of the line containing the points $A = (-1, 2)$ and $B = (3, 0)$?

- a) $-\frac{1}{2}$
- b) -1
- c) -2
- d) $\frac{2}{3}$

16. The number of calories in cashew butter varies directly with the number of ounces. If a 3-ounce serving of cashew butter contains 300 calories, how many calories are there in a 7-ounce serving?

- a) 500
- b) 600
- c) 700
- d) 800

17. Which of the following equations describes the line which contains the point $(-2, 4)$ and is perpendicular to the line $y = -2x + 1$?

- a) $y = \frac{1}{2}x - 4$
- b) $y = \frac{1}{2}x + 6$
- c) $y = \frac{1}{2}x + 5$
- d) $y = -\frac{1}{2}x + 3$

18. Solve the following system of linear equations: $\begin{cases} 4x + 5y = 6 \\ x + 2y = 3 \end{cases}$

- a) $x = 2, y = 1$
- b) $x = 0, y = \frac{6}{5}$
- c) $x = \frac{1}{2}, y = -\frac{3}{2}$
- d) $x = -1, y = 2$

19. Ben ordered pizzas for an office party. He ordered two types: cheese, and pepperoni. Cheese pizza costs \$4 each, and pepperoni pizza costs \$6 each. The amount he spent on the pepperoni pizzas was \$2 less than what he spent on the cheese pizzas. If Ben spent a total of \$62, how many of each type did he buy?

- a) Cheese: 2; Pepperoni: 9.
- b) Cheese: 5; Pepperoni: 7.
- c) Cheese: 8; Pepperoni: 5.
- d) Cheese: 11; Pepperoni: 3.

20. If x liters of a 30% acid solution are mixed with y liters of a 45% acid solution, which of the following expressions represents the amount of acid in the final mixture?
- a) $\frac{3y}{2x}$
 - b) $0.45y - 0.3x$
 - c) $1350xy$
 - d) $0.3x + 0.45y$

EXAM I- SAMPLE A

- 1. B
- 2. D
- 3. C
- 4. B
- 5. A
- 6. C
- 7. A
- 8. C
- 9. D
- 10. A
- 11. D
- 12. B
- 13. D
- 14. C
- 15. A
- 16. C
- 17. C
- 18. D
- 19. C
- 20. D