

TEST NAME: **Solving BANK**
TEST ID: **47625**
GRADE: **08**
SUBJECT: **Mathematics**
TEST CATEGORY: **My Classroom (Individual Teacher Assessments)**

Student: _____
Class: _____
Date: _____

1. Write an example of a linear equation with one variable and infinitely many solutions.
2. Which of these are solutions to the equation $-6(3x + 2) = 2x - 5 - 20x - 7$? Select *all* that apply.
 - A. $x = 2$
 - B. $x = 4$
 - C. $x = 6$
3. Which of these is a solution to the equation $2(x - 5) = 9 - 3x + 6 + 8 + 3x + 7$?
 - A. $x = 10$
 - B. $x = 20$
 - C. $x = 40$
 - D. $x = 80$
4. How can you transform the equation $-9x - 13 + 11x + 6 = 11x - 9x + 13 - 6$ into the form $a = b$, where a and b are numbers, to show that the equation has no solutions?
 - A. by adding $2x$ to both sides of the equation and then simplifying
 - B. by adding $9x$ to both sides of the equation and then simplifying
 - C. by subtracting $2x$ from both sides of the equation and then simplifying
 - D. by subtracting $11x$ from both sides of the equation and then simplifying
5. How can you transform the equation $8x - 10 + 10 + 4x = -10 + 6x + 6x + 10$ into the form $a = a$, where a is a number, to show that the equation has an infinite number of solutions?
Pick up to 4 answers.
 - A. by adding $12x$ to both sides of the equation and then simplifying
 - B. by adding 10 to both sides of the equation and then simplifying
 - C. by subtracting $12x$ from both sides of the equation and then simplifying
 - D. by subtracting 10 from both sides of the equation and then simplifying
6. Which of these equations has a solution of $x = 2$? Select three that apply.
 - A. $6(2x - 1) = 4 + 7x$
 - B. $10 - 3x = -2(x + 4)$
 - C. $-3(7 - 2x) = -1 - 4x$
 - D. $7x + 12 = 2(4x - 5)$
 - E. $-5(x + 1) = -4 - 7x$
 - F. $8x + 11 = 9(5 - x)$

7. Which of these equations has a solution of $x = 2$? Select *three* that apply.

- A. $3(x + 4) = 16x - 14$
- B. $5x - 11 = 6x - x - 11$
- C. $4x + 9 = 2(2x + 9)$
- D. $12x + 7 = -(2x - 3) + 16x$
- E. $(\frac{1}{2})^x = 4$

8. Which of these equations has one solution?

- A. $14 - 5x - 8 - x = 3 + 15 - 12x - 6x$
- B. $9x + 2 - 11 + 3x = -x + 13x - 4 - 5$
- C. $7x + 10 - 9 - 9x = 4x + 7 - 6 - 6x$
- D. $-16 + x - 4x + 2 = 2x - 5x + 1 + 9$

9. Which of these equations has infinitely many solutions? Select three that apply.

- A. $5a - 9 - 6a - 15 + 7a = 12 - a - 2a + 12 - 3a$
- B. $2a - 10 - 3a + 18 - 4a = 6 - 9a + a + 2 + 3a$
- C. $9 - 20a + 4 + 2 + 8a = a - 7 - 13a - 5 - 3$
- D. $8a + 1 - 11 - a + 4 = 10 - 9 + 2a - 7 + 5a$
- E. $14 - 2a + 6a + 2 + 13a = 16a + 12 + 7a + 4 - 6a$
- F. $3 + 18a - a + 11 - 7a = 6a + 1 + 3a + 9 + 5a$

10. What value of x makes this statement true?

$$3x + 4 = 9x - 8$$

- A. -2
- B. 1
- C. 2
- D. 12

11. Which of these equations has an infinite number of solutions?

- A. $2x + x + 5x - 9 = -6 + 9x - x + 3$
- B. $10x - 6x - 4 - 1 = 7 - 12 + 2x + 2x$
- C. $7x + 5 + 4 - 9x = x + 2 - 4 + 8x$
- D. $5x - 2x - 3 - 9 = x - 12 + 3x + 3x$

12. Which of these is a correct statement?

- A. The equation $3 - x + 4 = -x + 7$ has no solutions.
- B. The equation $x - 2 = 15x + 8 - 9x$ has one solution.
- C. The equation $4x + 5 + 8x = 25 + 2x$ has two solutions.
- D. The equation $9 + 3x - 1 = 10 + 3x$ has an infinite number of solutions.

13. Solve:

$$2(3r + 4) - 3(r + 1) = 11$$

- A. 0
- B. 2
- C. 3
- D. $\frac{16}{3}$

14. Select the equation that has *no* solution.

- A. $3(2x + 7) = 6(x + 4) - 3$
- B. $3(6x - 5) = 3(6x - 5) + x$
- C. $8(x - 3) + 14 = 2(4x + 5)$
- D. $13x - 7 = 12(x - 1) + x + 5$

15. Select *all* equations that have infinite solutions.

- A. $2 - 2x = -2(x - 1)$
- B. $2x + 7 = 2x - 7$
- C. $5x + 4 = 5(x + 4)$
- D. $x - (x - x) = x$
- E. $5x = 4x + 1$

16. What value of x makes this statement true?

$$3x = 2x + 12$$

- A. 2
- B. 5
- C. 6
- D. 12

17. Choose the option that would create an equation with infinite solutions.

$$2c + (3c - 4) = \underline{\hspace{1cm}} - 4$$

- A. $-4c$
- B. $-1c$
- C. $4c$
- D. $5c$

18. Select *all* equations that have no solution.

- A. $19 + b + 12b - 8 - 5b = 2b - 7 + 3b + 3b - 4$
- B. $4b - 9b - 13 - 6 + 16b = 1 - 8 + 6b + 5b - 12$
- C. $7 + 7b - 2 - 15b + b = 4b - 5 - 11b + 2 + 10$
- D. $10b + 8b + 9 - 18b + 3 = 5 + 6b - 2b - 12 + 7$
- E. $9 - 19b - 9 - 2b + 7b = 4b + 3 + 14 - 4b - 17$
- F. $8b - 10 + b + 3b + 2 = 7 + 2b + 10b - 18 - 3$

19. **Select two equations that have infinitely many solutions.**

- A. $2(7 - 4x) = 4(5 - 2x) - 6$
- B. $6(x - 9) = 6x - 54 + x$
- C. $4(x + 4) = 2(2x + 5) + 6$
- D. $5(x - 8) + 10 = 5(x + 2)$

20. **Why does the equation $9 - 2x - 9 - 16x = -14x - 7 - 4x - 11$ have no solutions?**

- A. because if you add $18x$ to both sides of the equation and simplify, you get $-18 = -18$
- B. because if you add $18x$ to both sides of the equation and simplify, you get $0 = -18$
- C. because if you subtract $18x$ from both sides of the equation and simplify, you get $-18 = -18$
- D. because if you subtract $18x$ from both sides of the equation and simplify, you get $0 = -18$

21. **Why does the equation $7x + 13x - 5 - 15 = -10 - 10 + 14x + 6x$ have an infinite number of solutions?**

- A. because if you add $20x$ to both sides of the equation and simplify, you get $-20 = -20$
- B. because if you add $20x$ to both sides of the equation and simplify, you get $-20 = 0$
- C. because if you subtract $20x$ from both sides of the equation and simplify, you get $-20 = -20$
- D. because if you subtract $20x$ from both sides of the equation and simplify, you get $-20 = 0$

22. **A linear equation in one variable (the variable x) that can be transformed into an equivalent equation in which of these forms has no solution? Select one that applies.**

- A. $x = 0$
- B. $0 = 0$
- C. $0 = 1$

23. **Consider this equation $4(6x + 8) = jx + k$.**

Find one value for j and one value for k so that there is exactly one value of x that makes the equation true.

Explain your reasoning.

Now, find one value for j and one value for k so that there are infinitely many values of x that make the equation true.

Explain your reasoning.

24. Thomas decided to join the "frequent flyer club" with an airline company. He learned that he would earn points depending on the tickets he purchased. Thomas is awarded so many points per dollar spent. Below is a table outlining the reward points for each level of ticket purchased.

Ticket	Points Earned per Dollar
First Class	14
Business Class	12
Economy Class	8

Thomas also read that points can be redeemed to purchase other flights. In order to redeem points and purchase airfare, they multiply the cost of the flight by a certain number of points based on each level of ticket desired. Below is a table that outlines the multipliers for each tier of ticket.

Ticket	Points per Dollar
First Class	130
Business Class	110
Economy Class	70

If Thomas purchases a business class ticket from Los Angeles to New York that costs \$500, how many points would he earn?

Thomas earned 2400 points for purchasing an economy class ticket. Create an equation to represent the amount of money Thomas spent for this flight. Use d to represent the amount of money Thomas spent to earn these points.

Thomas noticed that when traveling for work, he earns 2400 points. How many of these flights would it take Thomas to earn a completely free first class flight to New York, which is valued at \$550?

25.

Equation (1)	$y = x + 6$
Equation (2)	$y = 2x + 4$
Equation (3)	$y = 3x + 2$
Equation (4)	$y = 5x - 4$

The table above shows four equations. If $x = 2$, which equation has a y -value *different* from the other three equations?

- A. Equation (1)
- B. Equation (2)
- C. Equation (3)
- D. Equation (4)

26. David wants to buy a new tablet computer. He looks at a sales ad and sees that a computer store is selling a tablet computer for \$499 which is $\frac{1}{3}$ off the regular price.

Part A:

Write an equation that represents the situation. Let x = the original cost of the tablet.

Part B:

Find the original cost of the tablet computer.

27. Select *all* equations that have no solution.

- A. $6 + 2x = 2(x + 6)$
- B. $3(3x - 4) = -9x + 11$
- C. $11x - (x + 5) = -2(-5x - 3)$
- D. $3x - (x - x) = x + 4$
- E. $3x - x + 12 - 6x = 4(5 - 2x) - (-4x)$

28. Solve for t :

$$t - 3(4 - t) = -24$$

- A. -6
- B. -3
- C. 3
- D. 6

29. How can you transform the equation $-15x + 24 + 16x = 3x - 24 - 3x$ into the form $x = a$, where a is a number, to show that the equation has one solution?

- A. by adding $3x$ to both sides of the equation and then simplifying
- B. by adding 24 to both sides of the equation and then simplifying
- C. by subtracting $3x$ from both sides of the equation and then simplifying
- D. by subtracting 24 from both sides of the equation and then simplifying

30. Which of these equations has an infinite number of solutions? Select *two* that apply.

- A. $2x + x - 4 = -x - x - x + 2 - 6$
- B. $x + 2x + 3 + 3 + 3 = 3(x + 3)$
- C. $4(x + 9) = 2(2x + 9) + (-18)$
- D. $7x - 9 = 2x - 5x - 9$
- E. $6x = (\frac{12}{2})x$

31. A linear equation with one variable, x , can be transformed into an equivalent equation that has one solution. Which of the following shows that the linear one-variable equation has one solution?

- A. $x = x$
- B. $x = 3$
- C. $1 = 1$
- D. $1 = 3$

32. Lillian has nickels, dimes, and quarters in her coin purse. She has 3 fewer dimes than quarters, and 3 times as many nickels as dimes. If she has a total of 33 coins, which of these is either the number of nickels, the number of dimes, or the number of quarters she has? Select three that apply.
- A. 3
 - B. 6
 - C. 9
 - D. 12
 - E. 18
 - F. 27
33. Which of these equations has no solutions?
- A. $-10 + 8x - 7x + 10 = x + 6 - x - 6$
 - B. $21 - 9 + 4x - 5x = 8x - 7x + 4 + 6$
 - C. $x - 4 + 1 - 7x = -8x + 4 + 2x - 7$
 - D. $3x + 5 - 10x + 8 = x - 8x - 16 - 3$
34. Select *all* equations that have infinitely many solutions.
- A. $5x + 10 = 5x + 20$
 - B. $4(2x - 5) = 8x - 20$
 - C. $5x + 8 - x = 20 + 4x - 12$
 - D. $15x - (10 + 5x) = 20x - 10$
35. A linear equation in one variable (the variable x) that can be transformed into an equivalent equation in which of these forms has more than one solution? Select two that apply.
- A. $x = 1$
 - B. $1 = 1$
 - C. $x = 2$
 - D. $1 = 2$
 - E. $2 = 2$
 - F. $2 = 3$
36. Why does the equation $35 - 5x + 6x - 36 = -24 - 17x + 17x + 24$ have one solution?
- A. because if you add 1 to both sides of the equation and simplify, you get $x = 1$
 - B. because if you add 1 to both sides of the equation and simplify, you get $1 = 1$
 - C. because if you subtract 1 from both sides of the equation and simplify, you get $x = 1$
 - D. because if you subtract 1 from both sides of the equation and simplify, you get $1 = 1$
37. Select *all* equations that have one solution.
- A. $2x + 2x + 2 = 4x + 2$
 - B. $\frac{3}{4}(4x - 8) = 18$
 - C. $x + x - (x + x) = 2x - x + 2$
 - D. $\frac{1}{2}(x) = x + \frac{1}{2}$
 - E. $-3(-x - 2) = 3(x - 2)$

38. Which of the following equations have no solution for a ? Select *all* that apply.

- A. $5a - 1 + 2a + 5 + a = 9a + 3a + 8 - 5a - 6$
- B. $1 + 2a - 7 + 9a + 5 = 6a + 8a - 13 + 2 - 3a$
- C. $8a - 5 + 2a - 6 + 18 = 9 + 8 - 3a + 13a - 10$
- D. $12 + 4a - 3a - 12 + 5a = 16 - 2a - 7 - 9 + 2a$
- E. $-3a - 12a + 5 + 6a - 10 = 11 - 7a - 6 + 2a - 4a$
- F. $-20 - 2a + 12 + 4 + 18a = 10a + 8 - 13 + 6a - 1$

39. Of the 34 students in a class, there are 2 fewer students with blue eyes than there are students with hazel eyes. Also, there are twice as many students with brown eyes than there are students with blue eyes. Which of these is either the number of students with blue eyes, the number of students with brown eyes, or the number of students with hazel eyes? Select *all* that apply.

- A. 8
- B. 10
- C. 12
- D. 16
- E. 20
- F. 34