

TOPIC 1 POSTTEST

First and Last Name _____

Teacher _____ **Block/Period** _____

This test will help us learn how you think about algebra topics from Topic 1: Solving Linear Equations. Please do your best to answer all the questions.

If you don't know an answer, you may guess or write "I don't know". Please don't leave any questions blank – we want to know how much you had time to try.

If you make a mistake, please lightly cross out the work, but do not erase it. You may NOT use a calculator.

Only work forwards in the test booklet. Do not go back to a page that you've already looked at, even if you have extra time. You have 45 minutes to answer all the questions.

Thank you for doing your best work!

This page is blank on purpose!

What is today's date? _____

1) If $10x + 12 = 17$, which of the following must also be true?

- a. $10x + 12 - 12 = 17 - 17$
- b. $-10x - 12 = 17$
- c. $10x + 12 - 10 = 17 - 10$
- d. $10x - 10 + 12 - 10 = 17$

2) Look at this pair of equations. **Without solving the equations**, decide if these equations are equivalent (have the same answer).

$$34 = 8(x + 1) + 6(x + 1)$$

$$34 = 14(x + 1)$$

- a. YES
(same answer)
- b. NO
(different answer)
- c. CAN'T TELL
without doing the math
- d. CAN'T TELL
because I need more information

3) Which of the following is a like term to (could be combined with) $7(j + 4)$?

- a. $7(j + 10)$
- b. $2(j + 4)$
- c. $7(p + 4)$
- d. Both a and b
- e. All of the above

4) $3 + 4 = 7$



What does this symbol mean?

- a. "the total"
- b. "the right and the left sides have the same value"
- c. "what the answer is"
- d. "the problem has been solved"

5) Look at this pair of equations. **Without solving the equations**, decide if these equations are equivalent (have the same answer).

$$6(x + 3) = 60$$

$$x + 3 = 10$$

- e. YES
(same answer)
- f. NO
(different answer)
- g. CAN'T TELL
without doing the math
- h. CAN'T TELL
because I need more information

6) Solve the equation below for x . *To receive full credit, you must show all of your work and write your final answer in the blank provided.*

$$3(x - 6) + 5 = 20$$

ANSWER: _____

7) Solve the equation below for x . Circle the letter for your answer.

$$3(2x + 3x - 4) + 5(2x + 3x - 4) = 48$$

- a. $\frac{7}{8}$
- b. -1
- c. $\frac{2}{5}$
- d. 2

8) Solve the equation below for y . *To receive full credit, you must show all of your work and write your final answer in the blank provided.*

$$5(y - 2) = -3(y - 2) + 4$$

ANSWER: _____

9) Solve the equation below for x . *To receive full credit, you must show all of your work and write your final expression in the blank provided.*

$$45 = 2(x + 8) + 7(x + 8)$$

ANSWER: _____

10) Solve the equation below for x . Circle the letter for your answer.

$$8x + 3 = 3y - x$$

a. $x = \frac{3}{7} - \frac{3}{7}y$

b. $x = \frac{3}{7}y - \frac{3}{7}$

c. $x = \frac{1}{3}y - \frac{1}{3}$

d. $x = \frac{1}{3} - \frac{1}{3}y$

11) Below is the beginning of Gabriella's, Jamal's, and Nadia's work in solving the equation $x + 7 - 3 = 12 - 2x$. To start solving this problem, which way(s) may be used?

- a. Gabriella's way
- b. Jamal's way
- c. Nadia's way
- d. Jamal's and Nadia's ways
- e. Gabriella's, Jamal's, and Nadia's ways

Gabriella's way: Subtract 3 from 7: $x + 4 = 12 - 2x$	Jamal's way: Add $2x$ to both sides: $3x + 7 - 3 = 12$	Nadia's way: Subtract $(7 - 3)$ from both sides: $x = 8 - 2x$
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12) Below is how Gabriella started to solve this equation:

$$5(x + 3) + 6 = 5(x + 3) + 2x$$

$$6 = 2x$$

12a. What step did Gabriella use to get from the first line to the second line?

- a. **Distribute** across parentheses
- b. **Subtract** the same quantity on both sides
- c. **Divide** by the same quantity on both sides
- d. **Multiply** by the same quantity on both sides


12b. Do you think this is a good way to start this problem? Circle one:

- a. Very good way
- b. May be used, but not a very good way
- c. May not be used

For questions 13-15, **imagine you are taking a timed test.** *You want to use fast (and correct) ways to solve the problems so you can finish as many as possible. Choose the best way to start each problem.*

- 13) On a timed test, which would be the BEST way to begin to solve the equation below?
(Circle the letter for the best way).

$$7(x + 6) = 77$$

<p>a. Gabriella's way:</p> $7(x + 6) - 7 = 77 - 7$	<p>b. Jamal's way:</p> $\frac{7(x + 6)}{7} = \frac{77}{7}$	<p>c. Nadia's way:</p>  $7(x + 6) = 77$ <p>Distribute the 7</p>
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- 14) On a timed test, which would be the BEST way to solve the equation below? (Circle the letter for the best way.)

$$8(n + 1) = 2(n + 1) + 12$$

<p>a. Gabriella's way:</p> $4(n + 1) = (n + 1) + 6$	<p>b. Jamal's way:</p> $8n + 8 = 2n + 14$	<p>c. Nadia's way:</p> $6(n + 1) = 12$
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15) On a timed test, which would be the BEST way to solve the equation below for x given the values for y listed in the table? (Circle the letter for the best way).

$$4x + 18 = y$$

y
26
30
22
6
14

<p>a. Gabriella's way:</p> <p>$y = 26:$ $4x + 18 = 26$ $4x = 26 - 18$...</p> <p>$y = 30:$ $4x + 18 = 30$ $4x = 30 - 18$...</p> <p>$y = 22:$...</p>	<p>b. Jamal's way:</p> <p>$y = 26:$ $4x + 18 = 26$ $\frac{4x + 18}{4} = \frac{26}{4}$...</p> <p>$y = 30:$ $4x + 18 = 30$ $\frac{4x + 18}{4} = \frac{30}{4}$...</p> <p>$y = 22:$...</p>	<p>c. Nadia's way:</p> <p>$4x = y - 18$ $x = \frac{y - 18}{4}$</p> <p>$y = 26:$ $x = \frac{26 - 18}{4}$</p> <p>$y = 30:$ $x = \frac{30 - 18}{4}$</p> <p>$y = 22:$...</p>
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