

CHAPTER 7/TOPIC 4 POSTTEST

First and Last Name _____

Teacher _____ **Block** _____

This test will help us learn how you think about algebra topics from Chapter 7/Topic 4. Please do your best to circle an answer for 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.

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.

Thank you for doing your best work!

This page is blank on purpose!

1) Which of the following expressions is NOT equivalent to $(x + 4)(3x + 2)$?

- a. $(x + 4)(3x) + (x + 4)(2)$
- b. $x(3x) + x(2) + 4(3x) + 4(2)$
- c. $x(3x) + 2(4)(3x) + 4(2)$
- d. $(3x + 2)(x) + (3x + 2)(4)$

2) Which of the following has the same solution as the equation $2x + 4 = 0$?

- a. $2(x + 2) = 0$
- b. $2x + 4$
- c. $2(x + 4) = 0$
- d. both b and c
- e. both a and b

3) If $a \cdot b \cdot c = 0$ and $b = 7$, which of the following MUST be true?

- a. $a \cdot b = 0$
- b. $a \cdot c = 0$
- c. $a = 0$ or $c = 0$
- d. both b and c

4) Which of the following expressions is equivalent to $(2x - 8)(4x + 16)$?

- a. $6(x - 4)(x + 4)$
- b. $8(x - 4)(x + 4)$
- c. $(x - 4)(x + 4)$
- d. $2(x - 4)(x + 4)$

5) Which of the following expressions is equivalent to $x^4 - d^4$?

- a. $(x^2 + d^2)^2$
- b. $(x^2 + d^2)(x^2 - d^2)$
- c. $(x^2 + d^2)(x + d)(x - d)$
- d. a and b
- e. b and c

6) Which of the following are solutions to this equation: $(x - 1)(x - 2) = (x - 1)(x - 3)$

- a. $x = 1, x = 2, \text{ or } x = 3$
- b. $x = 2 \text{ or } x = 3$
- c. $x = 1$
- d. There are no solutions to this equation.

7) Circle the solution(s) to $7x^2 - 28x = 0$.

- a. $x = 4$
- b. $x = 0$
- c. $x = 7 \text{ or } x = 4$
- d. $x = 4 \text{ or } x = 0$

8) Which polynomial represents the product of $(x + 3)(x + 2)$?

- a. $x^2 + 6$
- b. $x + 3x + 2$
- c. $x^2 + 5x + 6$
- d. $x^2 + 6x + 6$

9) Circle the solutions to $x^2 - 7x + 6 = -6$.

- a. $x = 7 \text{ or } x = -12$
- b. $x = 4 \text{ or } x = 3$
- c. $x = -3 \text{ or } x = -4$
- d. $x = 0 \text{ or } x = -5$

10) Factor the expression completely. Circle your answer.

$$8x^2 + 18x + 9$$

- e. $2x(4x + 9) + 9$
- f. $8x^2 + 9(2x + 1)$
- g. $(8x + 9)(x + 1)$
- h. $(4x + 3)(2x + 3)$

11) Circle the solutions to $3x^2 - 6x - 24 = 0$.

- a. $x = 3$ or $x = -8$
- b. $x = -3$ or $x = 12$
- c. $x = 4$ or $x = -2$
- d. $x = 4$ or $x = -6$

12) Below is the beginning of Gabriella's, Jamal's, and Nadia's work in simplifying the expression $(7x^3 + 4x) - (8x^2 + 5x - 3)$. Which way(s) would be a mathematically okay way(s) to start solving the problem?

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

Gabriella's way:	Jamal's way:	Nadia's way:
$7x^3 - 8x^2 + 4x - 5x + 3$ $7x^3 - 8x^2 + (4 - 5)x + 3$ <p style="text-align: center;">...</p>	$7x^3 + 4x$ $\underline{-8x^2 - 5x + 3}$ $(7 - 8)x^{3+2} + (4 - 5)x + 3$ <p style="text-align: center;">...</p>	$7x^3 + 0x^2 + 4x + 0$ $\underline{-0x^3 - 8x^2 - 5x + 3}$ $(7 - 0)x^3 + (0 - 8)x^2 + (4 - 5)x + 3$ <p style="text-align: center;">...</p>

13) Below is the beginning of Gabriella's, Jamal's, and Nadia's work in factoring $3x^3 + 9x^2 + 6x$. Which way(s) would be a mathematically okay way(s) to start solving the problem?

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

Gabriella's way:	Jamal's way:	Nadia's way:
$3x^3 + 9x^2 + 6x$	$3x^3 + 9x^2 + 6x$	$3x^3 + 9x^2 + 6x$
$3x^3 + (9 + 6)(x^2 + x)$	$3x^3 + 3x^2 + 6x^2 + 6x$	$3x(x^2 + 3x + 2)$
...	$3x^2(x + 1) + 6x(x + 1)$...
	...	

For questions 14-15, **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.

14) On a timed test, which would be the BEST way to start factoring the trinomial $12x^2 + 24x - 36$? (Circle the letter for the best way.)

a. Gabriella's way:	b. Jamal's way:	c. Nadia's way:															
<table border="1"> <thead> <tr> <th>Factors of 12</th> <th>Factors of -36</th> <th>Factorization</th> </tr> </thead> <tbody> <tr> <td>2, 6</td> <td>2, -18</td> <td>$(2x + 2)(6x - 18)$</td> </tr> <tr> <td>2, 6</td> <td>18, -2</td> <td>$(2x + 18)(6x - 2)$</td> </tr> <tr> <td>6, 2</td> <td>2, -18</td> <td>$(6x + 2)(2x - 18)$</td> </tr> <tr> <td>...</td> <td></td> <td></td> </tr> </tbody> </table>	Factors of 12	Factors of -36	Factorization	2, 6	2, -18	$(2x + 2)(6x - 18)$	2, 6	18, -2	$(2x + 18)(6x - 2)$	6, 2	2, -18	$(6x + 2)(2x - 18)$...			$12x^2 + 24x - 36$ $12(x^2 + 2x - 3)$...	$12x^2 + 24x - 36$ $4(3x^2 + 6x - 9)$...
Factors of 12	Factors of -36	Factorization															
2, 6	2, -18	$(2x + 2)(6x - 18)$															
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6, 2	2, -18	$(6x + 2)(2x - 18)$															
...																	

15) On a timed test, which would be the BEST way to start solving the equation $x^2 + 3x + 2 = x^2 + 7x + 12$? (Circle the letter for the best way.)

a. Gabriella's way:	b. Jamal's way:	c. Nadia's way:
$x^2 + 3x + 2 = x^2 + 7x + 12$ $(x + 2)(x + 1) = (x + 4)(x + 3)$...	$x^2 + 3x + 2 = x^2 + 7x + 12$ $-x^2 \qquad \qquad -x^2$ $3x + 2 = 7x + 12$...	$x^2 + 3x + 2 = x^2 + 7x + 12$ $\sqrt{x^2 + 3x + 2} = \sqrt{x^2 + 7x + 12}$...