

# chapter\_5\_practice\_test

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Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Math 9 Chapter 5 Practice Test ~ Polynomials

### Teacher Assessment:

Fully Meeting Expectations	Meeting Expectations	Not Yet Meeting Expectations
4	3	2
4	3	2
<ul style="list-style-type: none"> <li>Student has demonstrated a thorough understanding of the mathematical concepts and how they relate to procedures.</li> <li>All the work has been logically shown to provide accurate solutions with only minor errors in computations NOT procedures or processes when necessary.</li> <li>It is clear that students are proficient in the language used in these units.</li> </ul>	<ul style="list-style-type: none"> <li>Student has demonstrated a partial understanding of the mathematical concepts and how they relate to procedures or processes.</li> <li>The work appears to follow a logical sequence, but there are some errors.</li> <li>Some work is shown to demonstrate understanding of the procedures, but is not complete.</li> <li>Work may appear to be rushed or partially understood.</li> </ul>	<ul style="list-style-type: none"> <li>Student has not successfully demonstrated their understanding of the mathematical concepts and how they are related to procedures.</li> <li>The work shown is incomplete, and no logical process has been followed.</li> <li>Computation involves major errors, and/or computation shows a weak understanding of concepts learned.</li> <li>An inappropriate method has been used to solve the question.</li> </ul>

Question	Learning Outcome	Assessment			
1	B5: demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2).	4	3	2	1
2		4	3	2	1
3		4	3	2	1
4	B6: model, record, and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially, and symbolically (limited to polynomials of degree less than or equal to 2).	4	3	2	1
5		4	3	2	1
6		4	3	2	1
7		4	3	2	1
8		4	3	2	1
9	B7: model, record, and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially, and symbolically.	4	3	2	1
10		4	3	2	1
11		4	3	2	1
12		4	3	2	1

Overall Letter Grade: **A A- B+ B B- C+ C C- I**

**Student Assessment:** Self-assess your work ethic for this unit in the following categories: (select G, S, or N for each).

	Assignment Completion	Asking for Help	Working in class
<b>G</b>	I completed all of my assignments and handed them in on time.	I always ask questions during the lesson, or ask for extra help (in or outside of class) when I need it.	I always work hard in class, both participating in the lesson and doing my homework practice.
<b>S</b>	I completed all of my assignments but did not hand them in on time.	I sometimes ask questions or ask for extra help when I need it.	I sometimes participate in the lessons and work on my homework practice in class.
<b>N</b>	I have not completed all of my assignments.	I usually don't ask questions in class or ask for extra help.	I usually don't participate in the lessons, and don't work very hard in class at my homework practice.

1. Model the following polynomial expressions using algebra tiles.

a.  $4x^2 - 3x + 3$



b.  $-2m + 2$



c.  $-2y^2$



2. Write the expression for the given model of the polynomial. (Red =  $N^-$ , Yellow =  $P^+$ )

a.



$-2x^2 + 2x - 3$

b.



$x - 8$

c.



$3x^2 - 2x + 4$

3. For the following polynomials identify the: coefficients, constant term, variables, degree, number of terms, and type of polynomial.

Polynomial	Coefficients	Constant Term	Variables	Degree	Number of Terms	Type of Polynomial
$-2h^2 + 3 - 4h$	$-2, -4$	$3$	$h$	$2$	$3$	Trinomial
$-7x^2$	$-7$	NA	$x$	$2$	$1$	Monomial
$5 + w$	$1$	$5$	$w$	$1$	$2$	Binomial

4. Identify the equivalent polynomials in the list below. Show all work to justify your answer.

a)  $1 + 5x$

b)  $6 - 2x + x^2 - 1 - x + x^2 = 2x^2 - 3x + 5$

c)  $4x^2 - 7x + 1 - 7x^2 + 2x + 3 = -3x^2 - 5x + 4$

d)  $4 - 5x - 3x^2 = -3x^2 - 5x + 4$

e)  $2x^2 - 3x + 5$

f)  $3x + 2x^2 + 1 - 2x^2 + 2x = 5x + 1$

$C = D$        $A = F$

$B = E$

5. ~~Use algebra tiles~~ Use algebra tiles to add or subtract the following polynomials. Record the final answer symbolically.

a.  $(4m^2 + 4m - 5) + (2m^2 - 2m + 1)$

$$= 6m^2 + 2m - 4$$

b.  $(3x + 2) - (-2x + 3)$

$$= 3x + 2 + 2x - 3$$

$$= 5x - 1$$

6. Add or subtract the following polynomials using a method of your choice.

a.  $(6 - 7a + a^2) + (-7a^2 + 4a + 11)$

$$= -6a^2 - 3a + 17$$

a.  $(1 - 3r + r^2) - (4r + 5 - 3r^2)$

$$= 1 - 3r + r^2 - 4r - 5 + 3r^2$$

$$= 4r^2 - 7r - 4$$

7. A student subtracted  $(2x^2 + 5x + 10) - (x^2 - 3)$  as shown below. Identify the error(s) in the given simplification, and write the correct answer.

Handwritten student work for problem 7:

$$\begin{aligned} &(2x^2 + 5x + 10) - (x^2 - 3) \\ &= 2x^2 + 5x + 10 - x^2 + 3 \\ &= x^2 + 8x + 10 \end{aligned}$$

The student's work shows two errors: the constant term should be +3, not +10, and the coefficient of the x term should be 5, not 8.

$$\begin{aligned} &(2x^2 + 5x + 10) - (x^2 - 3) \\ &= 2x^2 + 5x + 10 - x^2 + 3 \\ &= x^2 + 5x + 13 \end{aligned}$$

8. One polynomial is subtracted from another. The difference is  $-4x^2 + 2x - 5$ . Write **two** subtraction statements that have this difference.

a.  $(x^2 + 5x - 3) - (5x^2 + 3x + 2)$

$$= x^2 + 5x - 3 - 5x^2 - 3x - 2$$

$$= -4x^2 + 2x - 5$$

b.  $(-2x^2 - 4x + 1) - (2x^2 - 6x + 6)$

$$= -2x^2 - 4x + 1 - 2x^2 + 6x - 6$$

$$= -4x^2 + 2x - 5$$

9. Use algebra tiles to determine the quotient or product. Record the answer symbolically.

a.  $\frac{5x^2 - 10}{5}$

$$= \frac{5x^2}{5} - \frac{10}{5}$$

$$= x^2 - 2$$

b.  $-2(p^2 - 2p + 3)$

$$= -2p^2 + 4p - 6$$

10. Determine the product or quotient. Show all work and thinking.

a.  $(-2d + 9)(-3d)$

$$= 6d^2 - 27d$$

b.  $(-7z - 1)(-y)$

$$= 7yz + y$$

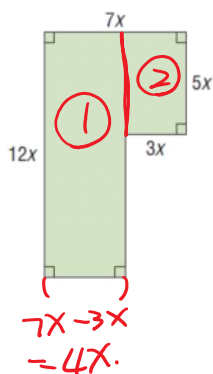
c.  $49j \div (-7j)$

$$= -7$$

d.  $\frac{40y^2 - 16y}{8y}$

$$= \frac{40y^2}{8y} - \frac{16y}{8y} = 5y - 2$$

11. Determine a polynomial for the area of this shape. Justify your answer.



$$\textcircled{1} (4x)(12x) = 48x^2$$

$$\textcircled{2} (3x)(5x) = 15x^2$$

$$A = 48x^2 + 15x^2 = 63x^2$$

12. Which pairs of expressions are equivalent? Show your work to show why or why not the expressions are equivalent.

a.  $4j^2 + 2$  and  $2(2j + 4)$

Not equivalent.

$$2(2j + 4) = 4j + 8$$

b.  $25x - 5$  and  $-5(-5x - 1)$

Not equivalent

$$-5(-5x - 1) = 25x + 5$$

c.  $\frac{-36x^2}{-9x}$  and  $4x$

Equivalent.

$$\frac{-36x^2}{-9x} = 4x$$