

Name: _____ Class: _____ Date: _____

ID: A

Math 9 Unit 5 Polynomials Practice Test

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- D 1. A large white square represents an x^2 -tile, a black rectangle represents a $-x$ -tile, and a small white square represents a 1-tile.

Write the polynomial represented by this set of algebra tiles.



- a. $4x^2 - x^3 + 6$ b. $-4x^2 + 3x + 6$ c. $4x - 3x^2 + 6$ d. $4x^2 - 3x + 6$
- C 2. Identify the polynomials that can be represented by the same set of algebra tiles.
- i) $3x^2 - 5 + 2x$
 ii) $3x^2 - 2x + 5$
 iii) $-5 + 2x - 3x^2$
 iv) $2x - 5 + 3x^2$
- a. iii and iv b. i and ii c. i and iv d. ii and iv
- C 3. Combine like terms. Sketch algebra tiles if it helps.
- $10x^2 - 7x + 3x - 8x^2$
- a. $2x^2 + 4x$ b. $-2x^2$ c. $2x^2 - 4x$ d. $3x^2 - 5x$
- B 4. Add: $(4x^2 - 5) + (5x^2 - 9x - 7)$
- a. $9x^2 - 9x + 12$ c. $20x^2 - 9x - 35$
 b. $9x^2 - 9x - 12$ d. $9x^2 - 14x - 7$
- D 5. Subtract: $(2r^2 - 3) - (5r^2 + 8r + 8)$
- a. $3r^2 - 8r - 11$ c. $3r^2 + 8r + 5$
 b. $-3r^2 + 8r + 5$ d. $-3r^2 - 8r - 11$
- A 6. Divide: $\frac{15w^2 - 12w + 9}{3}$
- a. $5w^2 - 4w + 3$ c. $12w^2 - 12w + 9$
 b. $12w^2 - 9w + 6$ d. $5w^2 - 12w + 9$

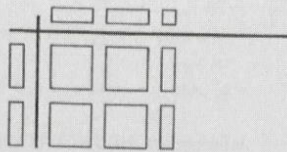
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- C 7. A large white square represents an x^2 -tile, a white rectangle represents an x -tile, and a small white square represents a 1-tile.

Which of these multiplication sentences is modelled by the algebra tiles below?

- i) $2x(2x + 1)$
- ii) $2(2x^2 + 1)$
- iii) $x(2x + 1)$
- iv) $2x(4x^2 + 2x)$



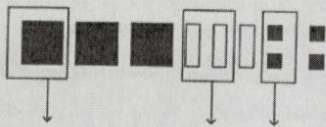
- A a. iv b. ii c. i d. iii

8. Multiply: $(-q)(5p - 8q)$

- a. $-5pq + 8q^2$
- b. $5p + 9q$
- c. $4pq - 9q^2$
- d. $-5pq - 8q$

- D 9. A large black square represents a $-x^2$ -tile, a white rectangle represents an x -tile, and a small black square represents a -1 -tile.

Write the subtraction sentence that these algebra tiles represent.



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

Short Answer

10. Name the coefficients, variable, degree, and constant term in the polynomial $4x^2 - 8x + 6$.

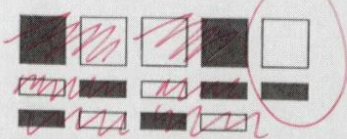
Coef	Var	deg	const
4, -8	x	2	6

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11. A large white square represents an x^2 -tile, a large black square represents a $-x^2$ -tile, a white rectangle represents an x -tile, and a black rectangle represents a $-x$ -tile.

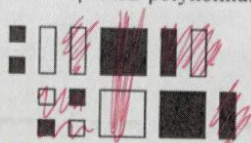
Write the simplified polynomial.



$x^2 - x$

12. A large white square represents an x^2 -tile, a large black square represents a $-x^2$ -tile, a white rectangle represents an x -tile, a black rectangle represents a $-x$ -tile, a small white square represents a 1-tile, and a small black square represents a -1 -tile.

Write the simplified polynomial.



$-x^2 + x - 2$

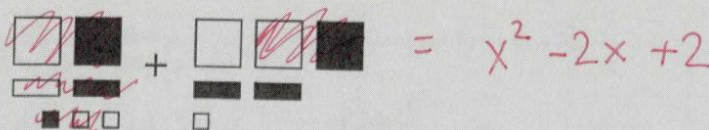
13. Group like terms, then simplify.

$$4 + 3x - 6 + 5x^2 + 2x - 5x^2 + 3 - 5x$$

$$5x^2 - 5x^2 + 3x + 2x - 5x + 4 - 6 + 3 = 1$$

14. A large white square represents an x^2 -tile, a large black square represents a $-x^2$ -tile, a white rectangle represents an x -tile, a black rectangle represents a $-x$ -tile, a small white square represents a 1-tile, and a small black square represents a -1 -tile.

Write the polynomial sum modelled by this set of tiles.



$= x^2 - 2x + 2$

15. Subtract: $(8y^2 - 2x^2 + 5x - 11) - (5y^2 - 6x^2 - 9x - 10)$

$$8y^2 - 2x^2 + 5x - 11 - 5y^2 + 6x^2 + 9x + 10$$

$$8y^2 - 5y^2 - 2x^2 + 6x^2 + 5x + 9x - 11 + 10$$

$$\boxed{3y^2 + 4x^2 + 14x - 1}$$

Master 5.17

PRACTICE Test: Unit 5 Polynomials

(ver. 11-09-A)

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(2 marks for each question, unless otherwise noted)

1). Identify the polynomials in the following expressions.

$2m^2 + 1$

$3x^{\frac{1}{2}}$

$-4x$

$\frac{1}{x^2 + x}$

$0.25y^2$

Not poly

Not poly

2). Identify each polynomial as a monomial, binomial, or trinomial.

$19t$

$g - 4g^2 + 5$

$-1 + xy + y^2$

$4 - 11w$

mono

tri

tri

bi

3). Circle the equivalent polynomial(s) that are equivalent to: $x^2 - 4x - 3$.

$x^2 - 4x + 3$

$-x^2 + 4x + 3$

$-4x - 3 + x^2$

$3 - 4x - x^2$

$-3 + x^2 - 4x$

$x^3 - 4x - 3$

$-4x - x^2 - 3$

$-3 - 4x + x^2$

4). Write a polynomial using the given information.

A.) A binomial that contains the variable x , with constant term -2 , and the coefficient of the other term is -3

$-3x - 2$

B.) A trinomial that contains the variable k , the coefficient of the second degree term is -1 , the coefficient of the first degree term is 5 , and the constant term is -8 .

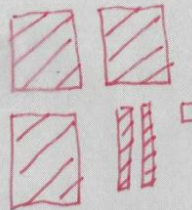
$-k^2 + 5k - 8$

5). Use algebra tiles to model each polynomial. Sketch the tiles.

A.) $2x - 1$



B.) $-3a^2 - 2a + 1$



Simplify each polynomial.

A.) $3a^2 - 2a - 4 + 3a - 2a^2 - 1$

$$3a^2 - 2a^2 - 2a + 3a - 4 - 1$$

$$\boxed{a^2 + a - 5}$$

B.) $-6x^2 + 10x - 4 + 3 - 12x - 7x^2$

$$-6x^2 - 7x^2 + 10x - 12x - 4 + 3$$

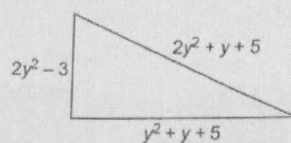
$$\boxed{-13x^2 - 2x - 1}$$

Write an expression for the perimeter of this triangle. Simplify the polynomial.

$$P = (2y^2 - 3) + (2y^2 + y + 5) + (y^2 + y + 5)$$

$$P = 2y^2 + 2y^2 + y^2 + y + y - 3 + 5 + 5$$

$$P = \boxed{5y^2 + 2y + 7}$$

Determine the perimeter of the triangle in the previous question if $y = 3$ cm.

$$P = 5y^2 + 2y + 7$$

$$P = 5(3)^2 + 2(3) + 7$$

$$P = 5(9) + 6 + 7$$

$$P = 45 + 6 + 7$$

$$\boxed{P = 58}$$

Use algebra tiles; sketch your tile model representing: $(4x + 2) - (-2x + 1)$.

Record your answer symbolically.

$$4x + 2 + 2x - 1$$

$$4x + 2x + 2 - 1$$

$$\boxed{6x + 1}$$

O). Add or subtract as indicated.

A.) $(3x + 6) - (x - 2) =$

$$3x + 6 - x + 2$$

$$3x - x + 6 + 2$$

$$\boxed{2x + 8}$$

B.) $(3y + 7y^2 + 9) - (3y^2 + 4y)$

$$3y + 7y^2 + 9 - 3y^2 - 4y$$

$$-3y^2 + 7y^2 + 3y - 4y + 9$$

$$\boxed{4y^2 - y + 9}$$

C.) $(x - 3x^2) + (7 + 3x - 3x^2)$

$$x - 3x^2 + 7 + 3x - 3x^2$$

$$-3x^2 - 3x^2 + x + 3x + 7$$

$$\boxed{-6x^2 + 4x + 7}$$

D.) $(-5y^2 - y + 9) - (-2y^2 - y - 4)$

$$-5y^2 - y + 9 + 2y^2 + y + 4$$

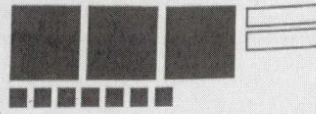
$$-5y^2 + 2y^2 - y + y + 9 + 4$$

$$\boxed{-3y^2 + 13}$$

11). Create one addition and one subtraction question that gives this result.

Addition

$$(-x^2 + x - 4) + (-2x^2 + x - 3) = -3x^2 + 2x - 7$$



(4 marks)

Subtraction

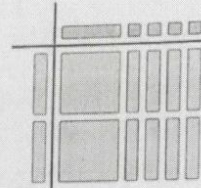
$$(-3x^2 + 2x - 7) - (-x^2 + x - 4) = (-2x^2 + x - 3)$$

12). Write the multiplication sentence and the division sentence modelled by this set of algebra tiles.

Multiplication

$$(2x)(x + 4) = 2x^2 + 8x$$

(4 marks)



Division

$$\frac{2x^2 + 8x}{2x} = (x + 4)$$

13). Multiply or divide as indicated.

A.) $2(-5r - 3)$

$$-10r - 6$$

D.) $(8y^2 - 6y + 2) \div (-2)$

$$\frac{8y^2}{-2} - \frac{6y}{-2} + \frac{2}{-2} = -4y + 3 - 1$$

B.) $\frac{12p^2 - 18p + 24}{-6}$

$$\frac{12p^2}{-6} - \frac{18p}{-6} + \frac{24}{-6} = -2p^2 + 3p - 4$$

E.) $3c(5c - 2)$

$$15c^2 - 6c$$

C.) $(1 + 3f - 4f^2)(-6)$

$$-6 - 18f + 24f^2$$

F.) $(-1 - 10r)(-r)$

$$r + 10r^2$$

G.) $\frac{8v^2 + 4v}{2v} = \boxed{4v + 2}$

H.) $\frac{(-6x + 9xy) + (-3x)}{-3x} = \boxed{2 + 3y}$

4.) Identify the error(s) in the solution. Complete the correct solution on the right.

$$3x(2x + 1)$$

$$= \textcircled{6x^2} + 3x$$

$$= 9x$$

$$(3x)(2x + 1)$$

$$6x^2 + 3x$$

5.) The perimeter of a rectangle is $8s^2 + 12s$. If the width of the rectangle is $4s$, what is the length?

Explain your strategy.

$$P = 4s + 4s + ? + ?$$

$$P = 8s + 2(?)$$

$$\frac{8s^2 + 12s}{2} = 4s^2 + 6s$$

$$\frac{8s^2 + 4s}{2} = 4s^2 + 2s$$

Length = $4s^2 + 2s$

6.) Here is a student's solution for a division question.

$$\frac{-12x^2 - 9x}{-3x}$$

$$= \frac{-12x^2 - 9x}{-3x}$$

$$= \frac{-12x^2}{-3x} - \frac{9x}{-3x}$$

$$= 4x \textcircled{-3}$$

$$\frac{-12x^2}{-3x} \quad \frac{-9x}{-3x}$$

$$\boxed{4x + 3}$$

A.) Explain why the student's solution is incorrect.

B.) Complete a correct solution on the space to the right of the student's solution.

Math 9

Name _____

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Polynomial Review

Date _____

Period _____

Simplify each expression.

1) $(x+3-7x^2)-(2x+3x^2+8)$

$$\begin{aligned} & -7x^2 + x + 3 - 3x^2 - 2x - 8 \\ & -7x^2 - 3x^2 + x - 2x + 3 - 8 \\ & \boxed{-10x^2 - x - 5} \end{aligned}$$

3) $(7p+3+7p^2)+(6p^2+5p-6)$

$$\begin{aligned} & 7p^2 + 6p^2 + 7p + 5p + 3 - 6 \\ & \boxed{13p^2 + 12p - 3} \end{aligned}$$

5) $(7x^2y^4+7x^3y^4)+(3x^3y^4+x^2y^4)$

$$\begin{aligned} & 7x^2y^4 + 3x^3y^4 + 7x^3y^4 + x^2y^4 \\ & \boxed{10x^2y^4 + 8x^3y^4} \end{aligned}$$

7) $(5x^4y^2-5y^3)-(3x^4y^2+6y)$

$$\begin{aligned} & 5x^4y^2 - 5y^3 - 3x^4y^2 - 6y \\ & 5x^4y^2 - 3x^4y^2 - 5y^3 - 6y \\ & \boxed{2x^4y^2 - 5y^3 - 6y} \end{aligned}$$

Find each product.

9) $-3a(a+3)$

$$\boxed{-3a^2 - 9a}$$

11) $-(-8x-1)$

$$\boxed{8x + 1}$$

13) $2m^2(8m^2+7mn+4n^2)$

$$\boxed{16m^4 + 14m^3n + 8m^2n^2}$$

15) $-7xy(2x^2+5xy+7y^2)$

$$\boxed{-14x^3y - 35x^2y^2 - 49xy^3}$$

2) $(3k-7k^4+5k^3)-(8k^3-2+2k)$

$$\begin{aligned} & -7k^4 + 5k^3 + 3k - 8k^3 + 2 - 2k \\ & -7k^4 - 5k^3 - 8k^3 + 3k - 2k + 2 \\ & \boxed{-7k^4 - 13k^3 + k + 2} \end{aligned}$$

4) $(1-2k-8k^4)+(3k^4-8k-2)$

$$\begin{aligned} & -8k^4 + 3k^4 - 2k - 8k + 1 - 2 \\ & \boxed{-5k^4 - 10k - 1} \end{aligned}$$

6) $(5y^3-5y^4)+(2y^3-8y^4)$

$$\begin{aligned} & 5y^3 + 2y^3 - 5y^4 - 8y^4 \\ & \boxed{7y^3 - 13y^4} \end{aligned}$$

8) $(2+3y^4)-(8+6y^4)$

$$\begin{aligned} & 2 + 3y^4 - 8 - 6y^4 \\ & 3y^4 - 6y^4 + 2 - 8 \\ & \boxed{-3y^4 - 6} \end{aligned}$$

10) $3x^4(-6x+5)$

$$\boxed{-18x^5 + 15x^4}$$

12) $5a(-a-1)$

$$\boxed{-5a^2 - 5a}$$

14) $-5x(2x^2+3xy-8y^2)$

$$\boxed{-10x^3 - 15x^2y + 40xy^2}$$

16) $-6x(-4x^2+4xy-7y^2)$

$$\boxed{24x^3 - 24x^2y + 42xy^2}$$

gebra I

Name _____

Assignment _____

Date _____

Period _____

1) Simplify.

$$\frac{10n^3}{10n^2} + \frac{5n^2}{10n^2} + \frac{5n}{10n^2} \div 10n^2$$

$$\boxed{n + 0.5 + \frac{0.5}{n}}$$

$$2) \frac{18n^6}{6n^2} + \frac{2n^5}{6n^2} + \frac{2n^4}{6n^2} \div 6n^2$$

$$\boxed{3n^4 + \frac{1}{3}n^3 + \frac{1}{3}n^2}$$

$$\frac{45x^3}{9x} + \frac{36x^2}{9x} + \frac{9x}{9x} \div 9x$$

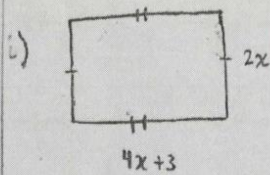
$$\boxed{5x^2 + 4x + 1}$$

$$4) \frac{4v^3}{8v} + \frac{24v^2}{8v} + \frac{8v}{8v} \div 8v$$

$$\boxed{0.5v^2 + 3v + 1}$$

Perimeter question:

What is the area and perimeter of the following shapes



$$A = (2x)(4x+3)$$

$$\boxed{A = 8x^2 + 6x}$$

$$\begin{cases} 8(2)^2 + 6(2) \\ 8(4) + 12 \\ 32 + 12 \\ 44 \end{cases}$$

$$P = 2x + 2x + 4x + 4x + 3 + 3$$

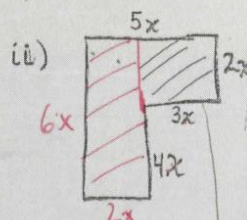
$$P = 12x + 6$$

$$P = 12(2) + 6$$

$$24 + 6$$

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If $x=2$ then what is the value of the Area and Perimeter from (i) & (iii)



$$\begin{cases} P = 5x + 2x + 3x + 4x + 2x \\ P = 22x \end{cases}$$

$$22(2)$$

$$44$$

$$A = (6x)(2x)$$

$$A = 12x^2$$

$$A = 3x(2x)$$

$$A = 6x^2$$

$$TA = 12x^2 + 6x^2$$

$$18x^2$$

$$18(2)^2$$

$$18(4) = 72$$