Chapter 3 Review

MPM1D
Jensen

Name:_____

Section 1: Vocabulary

Match each term to the correct definition.

a.	distributive property	e.	degree of a term
b.	polynomial	f.	degree of a polynomial
c.	term	g.	variable
d.	algebraic expression	h.	like terms

____ 1. a quantity whose value can change or vary

____ 2. a mathematical phrase made up of numbers and variables, connected by addition or subtraction operators

____ 3. an expression formed by the product of numbers and/or variables

____ 4. an algebraic expression formed by adding or subtracting terms

____ 5. the degree of the highest-degree term

____ 6. terms that have identical variables

____ 7. $a(x + y) = ax + ay$

____ 8. the sum of the exponents on the variables in a term

Section 2: Exponents

1. Evaluate the Following Exponents

a) 5^3 **b)** 2^8 **c)** -3^4

d) $(-2)^4$ **e)** $(-1)^{10}$ **f)** $\left(\frac{2}{3}\right)^3$

2. Write as a single Power then Evaluate

a) $8^5 \times 8^4 \div 8^7$ **b)** $6^7 \div 6^5 \div 6$ **c)** $(3^3)^4 \div 3^9$

d) $\frac{\left(5^3\right)^4 \times 5^2}{5^{10}}$ **e)** $2^7 \times 2^5 \div (2^2)^4$ **f)** $[(-6)^3]^3 \div [(-6)^2]^4$

3. Simplify the following using exponent laws.

a) $b^6 \times b^3$

b) $g^2 \times g^8 \div g^7$

c) $(a^5)^3 \div (a^4)^2$

d) $3m^5n \times 4m^2n^4$

e) $p^7q^4 \div p^3q^4$

f) $\dfrac{8b^3d \times 4bd^2}{2(2bd)^2}$

g) $x^5 \div x^7$

h) $\dfrac{2x^3 \cdot 3x^3}{9x^5}$

i) $\dfrac{4x^7}{12x^{11}}$

j) $\dfrac{(2x^3)^3 \cdot 2x^2}{(8x^2)^5}$

k) $\left(\dfrac{3}{7}\right)^2$

l) -6^4

Section 3: Communication

4. Complete the following charts:

a)

Term	Coefficient	Variable
$7m$		
$-3x^5$		
$\frac{3}{7}m^2n$		
gh		

b)

Term	Degree of Term
$-8b^4$	
$-x^4y^3$	
$\frac{3}{4}mn^2$	
$6r^6s$	

c)

Expression	Classify as a monomial, binomial, trinomial, or four-term polynomial
$a^2 - 2a + 1$	
$2 - 3x^4 - 5x^2 + 4x$	
$6m^2n^5$	
$h^3 + 6$	
$12x$	

d)

Polynomial	Degree of Polynomial
$5a^4 + b^3$	
$7b^6$	
$2x^2 + 3x - 1$	
$8m^4 - m^2 + 2m$	

Section 4: Like Terms

5. Simplify the following by collecting like terms:

a) $2b + 7g - 5b - 8g$

b) $3x + y^2 + 5y^2 - 7x$

c) $6q + u + 4u + q + u + 4u - u$

d) $10 - m^2 - 7 - m^2 + 4m^2$

e) $-3v + 2v + 6 - 3v - 9 - v$

f) $7 + h + h - 5 + 6h + 2 + 3h$

Section 5: Add and Subtract Polynomials

7. Simplify the following expressions

a) $(6k - 4) + (2k + 4)$

b) $(2a + 1) - (4a + 2)$

c) $(b - 6) - (2 - 5b) + (b + 4)$

d) $(g + 12) + (g - 7) - (2 - 3g)$

e) $(x^2 + 2x + 1) + (2x^2 + 4)$

f) $(2m^2 + m + 12) - (3m^2 + 4m - 6)$

Section 6: Distributive Property

8. Expand and Simplify the following:

a) $5(x + 3)$

b) $w(2w + 1)$

c) $q(q + 4)$

d) $3c(6 - 4c)$

e) $\frac{1}{4}(8a - 4) + \frac{2}{5}(5a + 10)$

f) $-5b(a^2 - 4a - 2)$

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

h) $-4(m + 2) + 3(m - 7)$

i) $5(d - 3) - (d + 2)$

j) $5[b + 2(b + 1)]$

k) $-2[3(a + 3) - 4]$

l) $4x(xy + 2y) - 3y(3x^2 + x)$

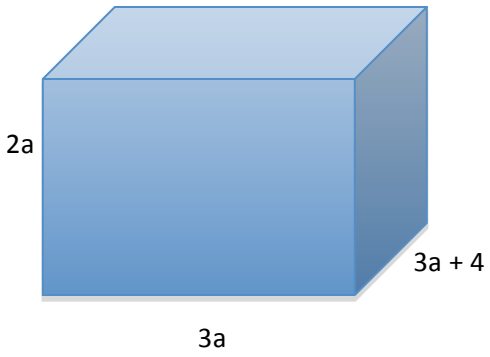
Section 7: Applications

9. A rectangular window frame has dimensions expressed by $3x$ and $(2x - 5)$. Find a simplified expression for its perimeter and determine the actual perimeter if $x = 3$ meters.

10. Write, expand and simplify an expression for the area of the face of the:

a. Front or back

b. Left or right side



c. Top or bottom

Section 1

1) g 2) d 3) c 4) b 5) f 6) h 7) a 8) e

Section 2

1) a) 125 b) 256 c) -81 d) 16 e) 1 f) 8/27

2) a) 64 b) 6 c) 27 d) 625 3) 16 f) -6

3) a) b^9 b) g^3 c) a^7 d) $12m^7n^5$ e) p^4 f) $4b^2d$ g) $\frac{1}{x^2}$ h) $\frac{2x}{3}$ i) $\frac{1}{3x^4}$ j) $\frac{x}{2048}$ k) $\frac{9}{49}$ l) -1296

Section 3

a)

7	m
-3	x^5
3/7	m^2n
1	gh

b) 4th
7th
3rd
7th

c) trinomial
4-term polynomial
monomial
binomial
monomial

d) 4th
6th
2nd
4th

Section 4

5)a) -3b-g b) $6y^2$-4x c) 7q+9u d) $2m^2$+3 e) -5v-3 f) 11h+4

Section 5

7) a) 8k b) -2a-1 c) 7b-4 d) 5g+3 e) $3x^2$+2x+5 f) $-m^2$-3m+18

Section 6

a) 5x+15 b) $2w^2$+w c) q^2+4q d) 18c-$12c^2$ e) 4a+3 f) -$5a^2$b+20ab+10b g) 5x+11 h) –m-29 i) 4d-17

j) 15b+10 k) -6a-10 l) -$5x^2$y+5xy

Section 7

9) 10x-10, 20 units

10) a) $6a^2$ b) $6a^2$+8a c) $9a^2$+12a