Key

Name: _____ Date: _____

Chapter 5 Practice Test

1) Identify each expression as one or more of a *monomial, binomial, trinomial, polynomial*:

a) $-23xyz$ monomial

b) $m-7+m^2$ trinomial polynomial

c) $-xyba^3+1$ binomial polynomial

d) $a+b+c-1$ polynomial

2) Find the degree of the following expressions:

a) -6 (0)

b) $-27x^1y^4z^1$ $1+4+1=6$

c) $\underbrace{x^3y^2}_{5}-\underbrace{17xyz}_{3}+\underbrace{25xyz^2}_{4}$ (5)

d) $\underbrace{abcdef}_{6}-\underbrace{4a^6}_{6}-\underbrace{3p}_{1}$ (6)

3) Find the degree of x for each:

a) $-w^3x^2y$ (2)

b) $\underbrace{3}_{0}-\underbrace{x^1}_{1}+\underbrace{2x^3yz^4}_{3}-\underbrace{x^2y}_{2}$ (3)

4) Write the following polynomial in descending powers of x:

$\underbrace{3x^3}_{3}-\underbrace{1}_{5}+\underbrace{x^5}_{1}-\underbrace{4x^2}_{2}+\underbrace{x}_{4}$ $\quad x^5-4x^3+3x^2+x-1$

5) Simplify:

a) $(x^2-6x+7)+(3x^2-5x+1)$

$x^2-6x+7+3x^2-5x+1$

$4x^2-11x+8$

b) $(-2y^2+5-y)+(-3y+5y^2-1)$

$-2y^2+5-y-3y+5y^2-1$

$3y^2-4y+4$

c) $(3a^2-6a-2)-(4a^2-2a-2)$

$3a^2-6a-2-4a^2+2a+2$

$-a^2-4a$

d) $(-3x+4x^2)-(1+x^2-4x)$

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

$3x^2+x-1$

* when adding and subtracting like terms, only the coefficients change!

6) Simplify: ① Multiply coefficients ② Add exponents on 'like variables'

a) $-4x^1(5x^3)$ $-20x^4$

b) $-y^2z^1(2z^1)$ $-2y^2z^2$

c) $3x^1y^1z^2(2x^1y^1)(-4x^2z^2)$ $-24x^4y^2z^4$

d) $6da^1b^1c^1(a^2)(-b^1)$ $-6a^3b^2c$

7) Expand:

a) $4(y^2-4y)$ $4y^2-16y$

b) $-3x^1(2x^2-5x+2)$ $-6x^3+15x^2-6x$

8) Expand and Simplify:

a) $-3(2x^2-3x+4)-1x(4x-6)$ $-6x^2+9x-12-4x^2+6x$ $-10x^2+15x-12$

(adding + subtracting like terms (only coeffs change))

b) $4m(3m-3+2m^2)+1m(m^2-2-12m)$ $12m^2-12m+8m^3+m^3-2m-12m^2$ $9m^3-14m$

9) Simplify: exponent to an exponent, therefore multiply

a) $(p^4)^3$ $p^{4\times3}$ p^{12}

b) $(ab^3)^2$ a^2b^6

c) $(-3x^1y^2z^4)^2$ $(-3)^2x^2y^4z^8$ $9x^2y^4z^8$

d) $-(2a^2b^3)^2$ $-(2^2a^4b^6)$ $-4a^4b^6$

10) Simplify:

a) $(2y)^3(4y^2)^5$ $2^3y^3(4^5y^{10})$ $8y^3(1024y^{10})$ $8192y^{13}$

(multiplying powers so add exponents)

b) $(-xyz)(2x^2y)^4$ $-1xyz(2^4x^8y^4)$ $-1x^1y^1z^1(16x^8y^4)$ $-16x^9y^5z$

c) $(-1a^1b^1c)^2(db^1c^2)^3$ $(-1)^2a^2b^2c^2(a^3b^3c^6)$ $1a^2b^2c^2(a^3b^3c^6)$ $a^5b^5c^8$

d) $\left(\frac{3x^3}{2xy^2}\right)^3$ $\frac{3^3x^9}{2^3x^3y^6}=\frac{27x^9}{8x^3y^6}$ $\frac{27x^6}{8y^6}$

11) Simplify ① divide coefficients ② subtract exponents on 'like' variables

a) $\frac{16m^5}{-8m^1}$

$-2m^4$

b) $\frac{24a^4b^6c^2}{6a^3b^1c^1}$

$4ab^5c$

c) $\frac{-3x^5y}{-x^5}$

$3y$

12) Simplify:

a) $\frac{18a^{-2}b^1c^4}{-3a^{-2}b^4c^1}$

$-6b^{-3}c^3$

$= \frac{-6c^3}{b^3}$

for a: $-2-(-2)$
$= -2+2$
$= 0$

for b: $1-4$
$= -3$

for c: $4-1$
$= 3$

b) $\frac{-48x^{-7}y^3}{-4x^{-3}y^2}$

$12x^{-4}y$

$= \frac{12y}{x^4}$

for x: $-7-(-3)$
$= -7+3$
$= -4$

for y: $3-2$
$= 1$

13) Simplify:

a) $\frac{8x^4-2x^3+4x^2}{2x^2}$

$4x^2-x+2$

b) $\frac{-12a^3b^4+9a^2b-3a^6b^2}{-3ab}$

$4a^2b^3-3a+a^5b$

c) $\frac{30xyz+50x^3y^4}{-10xy}$

$-3z-5x^2y^3$