Corner Brook Intermediate | Math 9

Unit 5: Polynomials | Name: Key

5.1: Modelling Polynomials

1. Which expressions are polynomials? Circle your answers.

a) $2m^2 + 1$ b) $3x^{\frac{1}{2}}$ c) $-4x$ d) $\frac{1}{x^2+x}$ e) $0.25y^2$

Polynomials cannot have variables in denominator and variable can only have whole # exponents.

2. Complete the table.

Polynomial	Coefficient	Variable	Degree	Constant Term	Identify Polynomial (monomial, binomial, trinomial)
$-8y$	-8	y	1	—	monomial
12	—		0	12	monomial
$-2b^2 - b + 10$	-2, -1	b	2	10	trinomial
$-4 - b$	-1	b	1	-4	binomial

3. Identify the equivalent polynomials.

a) $-h^2 - 3 + 4h$ $= -h^2 + 4h - 3$ b) $-3 + 4h - h^2$ $= -h^2 + 4h - 3$

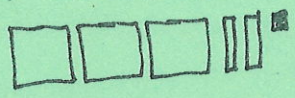
c) $5m - 3$ d) $-2 + y^2 + 5xy$ $= y^2 + 5xy - 2$

e) $y^2 + 5xy - 2$ f) $-3 + 5m$ $= 5m - 3$

A and B C and F D and E

4. Use algebra tiles to model each polynomial. Sketch the tiles.

a) $-5 + y^2$ b) $-3a^2 - 2a + 1$ c) $3z$



5. Write a polynomial to match the following conditions. - Answers may vary but must have essential elements.

a) 2 terms, degree 1, with a constant term of 4

$x + 4$

b) 3 terms, degree 2, with the coefficient on the 2nd degree term –2

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

5.2: Like Terms and Unlike Terms

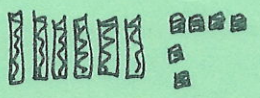
1. Circle terms that are like $2w^2$. Explain how you know they are like terms.

$-5w$, $(-6w^2)$, -2, $4w$, $(3w^2)$, $(-w^2)$, $11w$, 2

They are like terms because they can be modelled using tiles that are the same shape and size.

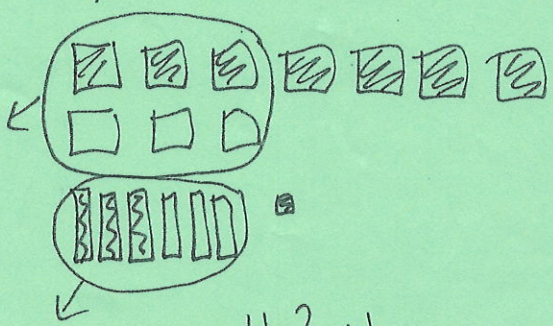
2. Use algebra tiles to model each polynomial, then combine like terms. Sketch the tiles for the simplified polynomial.

a) $4 + x + 1 + 5x + 1$



$6x + 6$

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



$4y^2 + 1$

3. Simplify each polynomial.

a) $7d - 2d + 1 - 6$

$= 5d - 5$

b) $-5 - 3 - k - 5k$

$= -k - 5k - 5 - 3$

$= -6k - 8$

c) $-4 + 2a + 7 - 4a$

$= 2a - 4a - 4 + 7$

$= -2a + 3$

d) $3p - 6 - 4p + 6$

$= 3p - 4p - 6 + 6$

$= -p$

4. Simplify each polynomial.

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

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

$= 0 + 0 + 1$

$= 1$

b) $7z - z^2 + 3 + z^2 - 7$

$= -z^2 + z^2 + 7z + 3 - 7$

$= 7z - 4$

c) $d^2 + 3d + 1 + 4d^2 + 2$

$= d^2 + 4d^2 + 3d + 1 + 2$

$= 5d^2 + 3d + 3$

d) $-6x^2 + 10x - 4 + 4 - 12x - 7x^2$

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

$= -13x^2 - 2x$

5. Identify the equivalent polynomials. Justify your responses.

a) $-5y^2 - 3y - 4$

b) $10x - 1$

c) $1 + x - x^2$

$= -x^2 + x + 1$

d) $2y^2 - 4 - 16 - 7y^2 - 3y + 16$

$= 2y^2 - 7y^2 - 3y - 4 - 16 + 16$

$= -5y^2 - 3y - 4$

e) $-7 + 5x - 7x - 8 + 14 + 12x$

$= 5x - 7x + 12x - 7 - 8 + 14$

$= 10x - 1$

f) $5x^2 + 7 + 4x - 6x^2 - 6 - x - 2x$

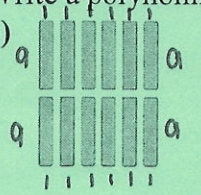
$= 5x^2 - 6x^2 + 4x - x - 2x + 7 - 6$

$= -x^2 + x + 1$

A and D B and E C and F

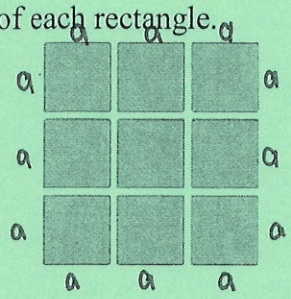
6. Write a polynomial to represent the perimeter of each rectangle.

a)



$P = 4a + 12$

b)



$P = 12a$