Lesson 1: Modelling Polynomials

**1.** Identify the polynomials in the following expressions.

**a)** 2*m*2 + 1 **b)** 

**c)** –4*x* **d)**

**e)** 0.25*y*2

**2.** Name the coefficients, variable, degree, and constant term of each polynomial.

**a)** –8*y* **b)** 12

**c)** –2*b*2 – *b* + 10 **d)** –4 – *b*

**3.** Identify each polynomial as a monomial, binomial, or trinomial.

**a)** 19*t* **b)** *g* – 4*g*2 + 5

**c)** –1 + *xy* + *y*2**d)** 4 – 11*w*

**4.** Identify the equivalent polynomials.

**a)** –*h*2 – 3 + 4*h* **b)** –3 + 4*h* – *h*2

**c)** 5*m* – 3 **d)** –2 + *y*2 + 5*xy*

**e)** *y*2 + 5*xy* – 2**f)** –3 + 5*m*

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

**a)** –5 + *y*2 **b)** 2*x* – 1

**c)** –3*a*2 *–* 2*a* + 1 **d)** 3*z*

**e)** *v*2 – 4*v*

**6.** Write a polynomial to match the following conditions.

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

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

Lesson 2: Like Terms and Unlike Terms

**1.** From the list, identify terms that are like 2*w*2. Explain how you know they are like terms.  
–5*w*, –6*w*2, –2, 4*w*, 3*w*2,–*w*2,11*w*, 2

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

**a)** 4 + *x* + 1 + 5*x* + 1 **b)**–3*y*2 + 3*y* – 2

**c)** 2*x*2 + 8 – 11 – 4*x*2 + 5*x*2 **d)** 3*y* + 7*y*2 + 1 – *y* – 2*y* – 3*y*2

**3.** Simplify each polynomial.

**a)** 7*d* – 2*d* + 1 – 6 **b)** –5 – 3 – *k* – 5*k*

**c)** –4 + 2*a* + 7 – 4*a* **d)** 3*p* – 6 – 4*p* + 6

**4.** Simplify each polynomial.

**a)** 3*a*2 – 2*a* – 4 + 2*a* – 3*a*2 + 5 **b)** 7*z* – *z*2 + 3 + *z*2 – 7

**c)** *d*2 + 3*d* + 1 + 4*d*2 + 2 **d)** –6*x*2 + 10*x* – 4 + 4 – 12*x* – 7*x*2

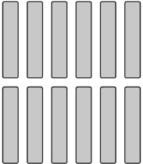
**5.** Identify the equivalent polynomials. Justify your responses.

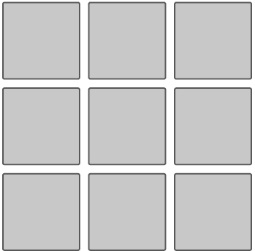
**a)** –5*y*2 – 3*y* – 4 **b)** 10*x* – 1

**c)** 1 + *x* – *x*2 **d)** 2*y*2 **–** 4 – 16 **–** 7*y*2 – 3*y* + 16

**e)** –7 + 5*x* – 7*x* – 8 + 14 + 12*x* **f)** 5*x*2 + 7+ 4*x* – 6*x*2 – 6 – *x* – 2*x*

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

**a)**

**b)**

Lesson 3: Adding Polynomials

**1.** Use algebra tiles to model each sum. Sketch your tile model.   
Record your answer symbolically.

**a)** (– 4*h* + 1) + (6*h* + 3) **b)**(2*a*2 + *a*) + (–5*a*2 + 3*a*)

**c)** (3*y*2 – 2*y* + 5) + (–*y*2 + 6*y* + 3) **d)** (3 – 2*y + y*2) + (–1 + *y* –3*y*2)

**2.** Add these polynomials. Use algebra tiles if it helps.

**a)** (*x* – 5) + (2*x* + 2) **b)** (*b*2 + 3*b*) + (*b*2 – 3*b*)

**c)** (*y*2 + 6*y*) + (–7*y*2 + 2*y*) **d)**(*5n*2 + 5) + (–1 –3*n*2)

**3.** Add these polynomials. Use algebra tiles if it helps.

**a)** (–7*x* + 5) **b)** (4*x*2 – 3)

+ (2*x* – 8) + (–8*x*2 – 1)

**c)** (*x*2 – 4*x* + 3) **d)** (3*x*2 – 4*x* + 1)

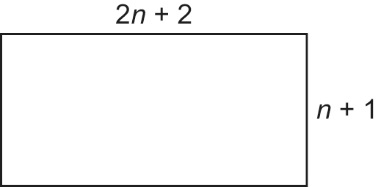
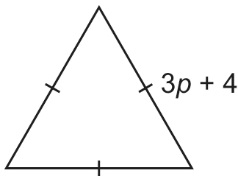
+ (–*x*2 – 2*x* – 3) + (–2*x*2 + 4*x* + 1)

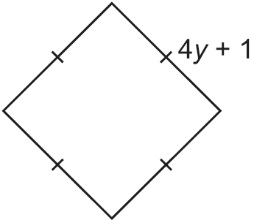
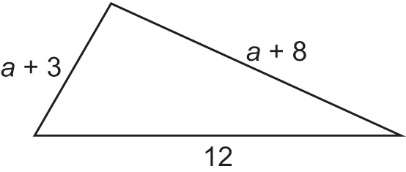
**4.** Add.

**a)** (*y*2 + 6*y* – 5) + (–7*y*2 + 2*y* – 2) **b)** (–2*n +* 2*n*2 + 2) + (–1 –7*n*2 + *n*)

**c)** (3*m*2 + *m*) + (–10*m*2 – *m* – 2) **d)** (–3*d*2 + 2) + (–2 –7*d*2 + *d*)

**5.** **a)** For each shape below, write the perimeter as a sum of polynomials and in simplest form.

 **i)** **ii)**

 **iii)** **iv)**

**b)** Use substitution to check each answer in part a.

**6.** The sum of two polynomials is 4*r* + 5 – 3*r*2. One polynomial is –8 – 2*r*2 + 2*r*; what is the other polynomial? Explain how you found your answer.