## Lesson Plan

Grade 10 Academic Math
Unit: Polynomials

Lesson: 1
Topic: Polynomial Review
\# course start-up: seating, course outline, rewrite policy, textbooks
\# notes: Polynomial Review
Many polynomials can be classified by either the number of terms or the highest exponent. When we classify by the number of terms, the suffix 'nomial' is used behind the prefix accorded each number. For example, the prefix 'mono' means one and therefore monomial means one term in the polynomial.

To classify polynomials by the highest exponent, we use:
linear for any polynomial with highest exponent of 1
quadratic for any polynomial with highest exponent of 2
cubic for any polynomial with highest exponent of 3
quartic for any polynomial with highest exponent of 4
Simplifying polynomials includes both collecting like terms and use of the distributive property. It is important to be sure to use BEDMAS at all times. Exponent rules must be used for both multiplication and division when simplifying,

Examples,
a) $2 x(3 x-4)+(x+3)-(2 x-7)=$
$=6 x^{2}-8 x+x+3-2 x+7$
$=6 x^{2}-9 x+10$
b) $\frac{14 x^{3}+21 x^{2}-28 x}{-7 x}=$
$=\frac{14 x^{3}}{-7 x}+\frac{21 x^{2}}{-7 x}-\frac{28 x}{-7 x}$
$=-2 x^{2}-3 x+4$
c) Teryl has a pool surrounded by a patio as shown in the diagram. What is the area of the patio if each measurement is given in metres?


Total Area $=$ Large Area - Small Area
$=3 x(5 x+9)-2 x(3 x+7)$
$=15 x^{2}+27 x-6 x^{2}-14 x$
$=9 x^{2}+13 x$ metres $^{2}$
\# homework assignment: Principles of Mathematics 10 p. 194 \# 1-3, \#7 and FM10 p. 60 \# 1 - 4

## 22 MULTIPLYING A POLYNOMAL BYA MONOMAL

## EXERCISE 22

A 1. Expand.
(a) $2(a+b)$
(b) $3(x-y)$
(c) $3(2 a-5 b)$
(d) $5(2 x+3 y)$
(e) $7(p+q-r)$
(f) $-3(2 c-d)$
(g) $-(a+b)$
(h) $-2(2 a-b+c)$

B 2. Expand.
(a) $2 x(x-5 y)$
(b) $3 a(2 a-5 b)$
(c) $-4 a(5 p+3 q)$
(d) $2 x^{2}(5 x-2 y)$
(e) $3 c^{3}(2 c-4 d)$
(f) $2 x y(x+2 y)$
(g) $3 x^{2} y(2 x+5 y)$
(h) $5 x y^{2}\left(4 x-2 y^{2}\right)$
3. Expand.
(a) $2 x^{2}(3 x+2 y+5)$
(b) $x y(x-2 y+5)$
(c) $3 a b(2 a-7 b-9)$
(d) $3 x^{2} y(x-2 y+3)$
(e) $a b c(2 a-3 b+c)$
(f) $3 a b^{2}(9 a-2 b+4 a b)$
4. Expand and simplify.
(a) $2(x+5)+3(x+4)$
(b) $3(m-4)+5(m+6)$
(c) $4(3 x-5)-6(2 x-1)$
(d) $2(3 y-4)-2(2 y-1)$
(e) $3(2 x-5)-(x-4)$
(f) $2(m-3)-4+2(m-5)$
(g) $5(x-6)-4(y+3)$
(h) $3 x-2(x+5)-(x-4)$
(i) $3\left(x^{2}-5 x+2\right)-4(x-6)$
(j) $4\left(x^{2}-x-1\right)-2\left(x^{2}+6 x-5\right)$

## EXERCISE 2.2

1. (a) $2 a+2 b$
(b) $3 x-3 y$
(c) $6 a-15 b$
(d) $10 x+15 y$
(e) $7 p+7 q-7 r$
(f) $-6 c+3 d$
(g) $-a-b$
(h) $-4 a+2 b-2 c$
2. (a) $2 x^{2}-10 x y$
(b) $6 a^{2}-15 a b$
(c) - 20ap - $12 a q$
(d) $10 x^{3}-4 x^{2} y$
(e) $6 c^{4}-12 c^{3} d$
(f) $2 x^{2} y+4 x y^{2}$
(g) $6 x^{3} y+15 x^{2} y^{2}$
(h) $20 x^{2} y^{2}-10 x y^{4}$
3. (a) $6 x^{3}+4 x^{2} y+10 x^{2}$
(b) $x^{2} y-2 x y^{2}+5 x y$
(d) $3 x^{3} y-6 x^{2} y^{2}+9 x^{2} y$
(e) $2 a^{2} b c-3 a b^{2} c+a b c^{2}$
(c) $6 a^{2} b-27 a b^{2}-27 a b$
4. (a) $5 x+22$
(b) $8 m+18$
(f) $27 a^{2} b^{2}-6 a b^{3}+12 a^{2} b^{3}$
(e) $5 x-11$
(f) $4 m-20$
(j) $2 x^{2}-16 x+6$
(c) -14
(d) $2 y-6$
(i) $3 x^{2}-19 x+32$
(g) $5 x-4 y-42$
(h) -6
