Before we begin, are there any questions from last day's work?

p. 533 #1 - 5

pp. 534-535 #1ad, 2ad, 3cd, 4bc, 6

2. Evaluate.

a) $3^0 + 5^0$

d) $\left(\frac{1}{2}\right)^3\left(\frac{2}{3}\right)^2$

$= \frac{(1)^3}{2^3} \cdot \frac{2^2}{3^2}$

$= \frac{1}{8_2} \cdot \frac{4^1}{9}$

$= \frac{1}{18}$

5. Simplify.

a) $(x^2y^4)(x^3y^2)$

b) $(-2m^3)^2(3m^2)^3$

$= (-2)^2(m^3)^2(3)^3(m^2)^3$

$= 4m^6 \cdot 27m^6$

$= 108m^{6+6}$

$= 108m^{12}$

c) $\frac{(5x^2)^2}{(5x^2)^0}$

$= \frac{(5)^2(x^2)^2}{1}$

$= 25x^4$

d) $(4u^3v^2)^2 \div (-2u^2v^3)^2$

$= 4^2(u^3)^2(v^2)^2 \div (-2)^2(u^2)^2(v^3)^2$

$= 16u^6v^4 \div 4u^4v^6$

$= \frac{16}{4}u^{6-4}v^{4-6}$

$= 4u^2v^{-2}$

$= \frac{4u^2}{v^2}$

$v^{-2} = \left(\frac{1}{v}\right)^2 = \frac{1}{v^2}$

$3^{-2} = \left(\frac{1}{3}\right)^2$

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) substitute into (and evaluate) algebraic expressions and formulas.
b) expand and simplify algebraic expressions.

MCF 3MI **Simplifying Algebraic Expressions Review** Date: Feb. 11/19
(**Every** lesson)

Ex. 1 Determine the value of $-3x^2 - y$, if $x = -2$ and $y = -5$.

$= -3(-2)^2 - (-5)$
$= -3(4) + 5$
$= -12 + 5$
$= -7$

–7

Ex. 2 The area of a circle is found using the formula $A = \pi r^2$.
Find the area of a circle with a radius of 3.8 m.
(Round your **final** answer to 3 decimal places.)

$A = \pi (3.8)^2$
$\doteq 45.3645$
$\doteq 45.365 \text{ m}^2$

45.365 m²

To simplify an expression, you have to use your algebra rules to make the expression as simple as possible.

To do this, you must *collect like terms*, use the *distributive property* or *FOIL*.

Ex. 3: Simplify the following.

$2xy^2 + 7yx^2$

a) $4x - 5y - 3y - 9x$

$= 4x - 9x - 5y - 3y$

$= -5x - 8y$

b) $+(4x - 7y) - (2y + 3x)$

$= 4x - 7y - 2y - 3x$

$= x - 9y$

c) $-4a(2a - 3b)$

$= -8a^2 + 12ab$

d) $8(2m - 3) + 3m(5m - 1)$

$= 16m - 24 + 15m^2 - 3m$

$= 15m^2 + 13m - 24$

FOIL

e) $(3x - 7)(4x + 9)$

$= 12x^2 + 27x - 28x - 63$

$= 12x^2 - x - 63$

f) $(2x^2 - 3)(5x^2 + 2)$

$= 10x^4 + 4x^2 - 15x^2 - 6$

$= 10x^4 - 11x^2 - 6$

g) $x^2y^4(3xy^2 - 4x^3y^2)$

$= 3x^3y^6 - 4x^5y^6$

Reminders:

Textbooks scanned at the Library

Today's Homework Practice (*Revised*):

p. 536 #1ac, 2bd, 3a**b**d

p. 543 #1bcd, 2bd, 3c, 4

Bring Graph Paper for tomorrow's class.

Practising

1. Find the value of each expression for $x = -5$ and $y = -4$.

a) $-4x - 2y$

b) $-3x - 2y^2$

c) $(3x - 4y)^2$

d) $\left(\frac{x}{y}\right) - \left(\frac{y}{x}\right)$

2. If $x = -\frac{1}{2}$ and $y = \frac{2}{3}$, find the value of each expression.

a) $x + y$

b) $x + 2y$

c) $3x - 2y$

d) $\frac{1}{2}x - \frac{1}{2}y$

3. a) The formula for the area of a triangle is $A = \frac{1}{2}bh$. Find the area of a triangle when $b = 13.5$ cm and $h = 12.2$ cm.

b) The area of a circle is found using the formula $A = \pi r^2$. Find the area of a circle with a radius of 4.3 m.

c) The hypotenuse of a right triangle, c, is found using the formula $c = \sqrt{a^2 + b^2}$. Find the length of the hypotenuse when $a = 6$ m and $b = 8$ m.

d) A sphere's volume is calculated using the formula $V = \frac{4}{3}\pi r^3$. Determine the volume of a sphere with a radius of 10.5 cm.