

**Review:****Part 5: Simplify the following by applying the properties of exponents.**

1)  $2m^2 \cdot 2m^3$

2)  $m^4 \cdot 2m^{-3}$

3)  $4r^{-3} \cdot 2r^2$

4)  $4n^4 \cdot 2n^{-3}$

5)  $(2b^4)^{-1}$

6)  $(x^2y^{-1})^2$

7)  $(2x^4y^{-3})^{-1}$

8)  $(3m)^{-2}$

**Part 5 Cont. : Simplify the following by applying the properties of exponents**

9)  $\frac{4x^0y^{-2}z^3}{4x}$

10)  $\frac{2h^3j^{-3}k^4}{3jk}$

11)  $\frac{4m^4n^3p^3}{3m^2n^2p^4}$

12)  $\frac{3x^3y^{-1}z^{-1}}{x^{-4}y^0z^0}$

**Part 6: Write each expression in radical form.**

1)  $(5x)^{-\frac{5}{4}}$

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

3)  $(10n)^{\frac{3}{2}}$

4)  $a^{\frac{6}{5}}$

**Part 7: Write each expression in exponential form.**

1)  $(\sqrt[4]{m})^3$

2)  $(\sqrt[3]{6x})^4$

3)  $\sqrt[4]{v}$

4)  $\sqrt{6p}$

**Part 8:** 1) Find the accumulated value of a \$5000 investment which is invested for 8 years at an interest rate of 12% compounded:

(a) annually

(b) semi-annually

(c) quarterly

(d) monthly

2) The exponential function  $f(x) = 84.5(1.012)^x$  models the population of Mexico,  $f(x)$ , in millions,  $x$  years after 1986.

(a) Without using a calculator, substitute 0 for  $x$  and find Mexico's population in 1986.

(b) Estimate Mexico's population, to the nearest million in the year 2000.

(c) Estimate Mexico's population, to the nearest million, this year.

3) A customer purchases a television for \$800 using a credit card. The interest is charged on an unpaid balance at a rate of 18% per year compounded monthly. If the customer makes no payment for one year, how much is owed at the end of the year?

- 4) A diamond ring was purchased twenty years ago for \$500. The value of the ring increased by 8% each year. What is the value of the ring today?
- 5) A tool & die business purchased a piece of equipment of \$250,000. The value of the equipment depreciates at a rate of 12% each year.
- Write an exponential decay model for the value of equipment.
  - What is the value of equipment after 5 years?
  - Graph the model.
  - Estimate when the equipment will have a value of \$70,000

Helpful Hint: Count by 10,000 on your y-axis. Count by 2s on your x-axis.

