Ch 4 Review **FPC 10**

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Last Name First Name Period

Goal #1	Beginning	Progressing	Achieving	Excelling
Mixed radicals and entire radicals				

★ Simplify. Show your steps and check your answer using a calculator.

$\sqrt[3]{250}$ $\sqrt{180}$

★★ Identify and explain the error in the student's work below. Show the correct solution.

$\sqrt[4]{160}$
$= \sqrt[4]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5}$
$= \sqrt{2 \cdot 2}\sqrt{2 \cdot 2}\sqrt{2 \cdot 5}$
$= 2 \cdot 2\sqrt{10}$
$= 4\sqrt{10}$

★★★ Arrange the following numbers in order from smallest to largest without using a calculator. Show your reasoning.

$$2\sqrt{7}, \sqrt{15}, 4\sqrt{3}, 5\sqrt{2}$$

Goal #2	Beginning	Progressing	Achieving	Excelling
Fractional Exponents				

Evaluate without a calculator. Show your reasoning below each question.

$25^{\frac{1}{2}} =$ $625^{\frac{1}{4}} =$

Evaluate without using a calculator. Show your steps.

Write $\sqrt[3]{x^2}$ in exponential form. $\left(\frac{125}{27}\right)^{\frac{1}{3}} =$

Kleiber's law relates a mammal's metabolic rate, Q (measured in Calories per day) to its body mass, m (measured in kilograms).

$$Q = 70m^{\frac{3}{4}}$$

Calculate the metabolic rate of a dog with a mass of 16 kg.

Goal #3	Beginning	Progressing	Achieving	Excelling
Negative Exponents				

☆ Evaluate without a calculator (show your thinking beneath each question.)

$4^{-3} =$ $\left(\frac{1}{2}\right)^{-4} =$ $\left(\frac{3}{10}\right)^{-2} =$

☆☆ Evaluate without a calculator. Show your steps and box in your final answer.

$81^{-\frac{1}{4}}$ $49^{-0.5}$

☆☆☆ Evaluate without a calculator. Show your steps and box in your final answer.

$(-0.008)^{-\frac{4}{3}}$

Goal #4	Beginning	Progressing	Achieving	Excelling
Apply exponent laws				

Simplify.

a) $\frac{(x^4)^2}{x^{-3}}$ b) $(10x^4y^{-3})^2$ c) $\left(3x^2\right)^2\left(x^5\right)$

Simplify and then evaluate without a calculator. Show your steps and box your answer.

a) $\frac{(0.3^2)^{-4}}{(0.3^{-2})^3}$ b) $\left[\left(\frac{3}{4}\right)^3\right]^{-4} \div \left[\left(\frac{3}{4}\right)^5\right]^{-2}$

Simplify. Show your steps and box your final answer.

$(9x^4y^2)^{\frac{1}{2}} \cdot (3x^3y^5)^{-1}$

If you think you need some more practice, please turn to P. 246 in your textbook!