

Math 220 – Business Calculus
Spring 2013 Quiz 1
Functions with Exponents, Domains

- 10 pts 1. Material for the top and the bottom of a box with a square bottom costs \$1.50 per square meter. Material for the sides costs \$1.20 per square meter. Write a function for the cost of the whole box. Use s to represent the length of each side of the base of the box. Use h to represent the height of the box.

$$C(s, h) = (1.50)(2)(s^2) + (1.20)(4)(sh)$$

- 4 pts 2. Convert each of these expressions to the form x^a

$$\frac{x^2 x^3}{x^5}$$

$$\frac{(x^4)^5}{x^{20}}$$

$$\frac{1}{x^4}$$
$$x^{-4}$$

$$\frac{1}{\sqrt{x^5}}$$
$$x^{-5/2}$$

- 6 pts 3. Give the domain of each function

$$y = 2x^4$$

$$\mathbb{R}$$
$$(-\infty, \infty)$$

$$f(t) = \sqrt{3t + 6}$$

$$3t + 6 \geq 0$$

$$t \geq -2$$

$$[-2, \infty)$$

$$g(y) = \frac{\sqrt{y}}{y-5}$$

$$y \geq 0 \text{ and } y \neq 5$$

$$[0, 5) \cup (5, \infty)$$