

Math 220 - Calculus f. Business and Management - Worksheet 3

Worksheet 3 - Powers and Roots

Numerical Problems

Exercise 1:

Simplify each expression to a single number.

$$1a: 2^2 2^5, \quad 1b: (2^2)^3, \quad 1c: 49^{1/2}, \quad 1d: 27^{2/3}, \quad 1e: 4^{-2}, \\ 1f: 36^{-1/2}, \quad 1g: (2^2 + 3^2)^2, \quad 1h: (-5)^2, \quad 1i: -5^2, \quad 1j: \sqrt{5^2 + 12^2}$$

Algebra Problems

Exercise 2:

Simplify to x^r where r is a real number.

$$2a: x^6 \sqrt[3]{x}, \quad 2b: \sqrt{x}/x^4, \quad 2c: x^3 \sqrt{x}/\sqrt[4]{x}, \quad 2d: (\sqrt{x})^3, \quad 2e: \sqrt[3]{x^5}, \\ 2f: (1/x)^{2/3}, \quad 2g: (x^5)^3, \quad 2h: x^{5^3}, \quad 2i: \frac{x^{-1/2}}{x^3}, \quad 2j: (-x)^4$$

Domains

Exercise 3:

Find the domain of each function.

$$3a: f(x) = \sqrt{3x+2}, \quad 3b: f(x) = \sqrt[3]{5x-6}, \quad 3c: f(x) = \sqrt{4-x}, \\ 3d: f(x) = \sqrt{-7x}, \quad 3e: f(x) = \frac{2}{5x+4}, \quad 3f: f(x) = \frac{6}{3-7x}, \\ 3g: f(x) = 5/(-6x), \quad 3h: f(x) = \sqrt{x^2-x-6}, \quad 3i: f(x) = \frac{1}{\sqrt{2x-8}}$$