

$$81^{-3/4} = \frac{1}{81^{3/4}} = \frac{1}{\sqrt[4]{81^3}} = \frac{1}{3^3} = \frac{1}{27}$$

$$27. \sqrt{\frac{24}{25}} = .979\dots$$

$$\frac{\sqrt{24}}{\sqrt{25}} = \frac{\text{irration}}{5}$$

$$108. g(x) = \frac{10}{\sqrt[3]{x}}$$

$$\sqrt[3]{x} = 0$$

$$\mathbb{R} \text{ except } x = 0$$

$$x \neq 0$$

$$22. \sqrt[5]{32} = 32^{1/5}$$

(2)

$$34. 256^{\frac{3}{4}} = 64$$

$$\sqrt[4]{256^3} = 64$$

$$105. f(x) = 3\sqrt{x}$$

$$x \geq 0$$

$$107. g(x) = \frac{2}{\sqrt[4]{x}}$$

$$\sqrt[4]{x} = 0 \quad x \geq 0$$

$$x \neq 0$$

$$(x > 0)$$

$$0-7+$$

$$8-15\checkmark$$

$$16\uparrow-$$

5.2 Properties of Exponents

$$1. a^0 = 1$$

$$2. \left(\frac{a}{b}\right)^{-m} = \left(\frac{b}{a}\right)^m$$

$$3. (ab)^m = a^m b^m$$

$$4. \left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

$$5. (a^m)^n = a^{m \cdot n}$$

$$6. a^m \cdot a^n = a^{m+n}$$

$$7. \frac{a^m}{a^n} = a^{m-n}$$

$$8. a^{-m} = \frac{1}{a^m}$$

$$\text{Ex: } \sqrt[3]{x^{12}} = x^{\frac{12}{3}} = x^4$$

$$x^2 \sqrt{x^3}$$

$$\underline{x^2} \cdot \underline{x^{\frac{3}{2}}} = x^{2+\frac{3}{2}} = x^{\frac{7}{2}}$$

$$\frac{\underline{x^{\frac{3}{4}}} \cdot \underline{x^{\frac{1}{2}}}}{x^{\frac{5}{2}}} = \frac{x^{\frac{5}{4}}}{x^{\frac{5}{2}}} = x^{-\frac{5}{4}} = \frac{1}{x^{\frac{5}{4}}}$$

$$\frac{X^{\frac{4}{3}} Y^{\frac{2}{3}}}{(X+Y)^{\frac{1}{3}}}$$

$$\frac{X^{\frac{4}{3}} Y^{\frac{2}{3}}}{(X)^{\frac{1}{3}} (Y)^{\frac{1}{3}}}$$

$$= \frac{X^{\frac{4}{3}} Y^{\frac{2}{3}}}{X^{\frac{1}{3}} Y^{\frac{1}{3}}} = X Y^{\frac{1}{3}} = X \sqrt[3]{Y}$$

$$\sqrt{\sqrt[3]{X}}$$

p. 321

52-100 even
odds E.C.