

11-1 Real Exponents

Recall

$$a^m a^n = a^{m+n}$$

$$(a^m)^n = a^{mn}$$

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}, \quad b \neq 0$$

$$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$$

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

$$\frac{a^m}{a^n} = a^{m-n}, \quad a \neq 0$$

$$\sqrt[n]{b} = b^{\frac{1}{n}}$$

$$\sqrt[n]{b^3} = b^{\frac{3}{n}}$$

Ex

$$3^{\frac{1}{2}} \cdot 21^{\frac{1}{2}}$$

$$3^{\frac{1}{2}} \cdot (3 \cdot 7)^{\frac{1}{2}}$$

$$3^{\frac{1}{2}} \cdot 3^{\frac{1}{2}} \cdot 7^{\frac{1}{2}}$$

$$\boxed{3\sqrt{7}}$$

$$\Rightarrow \sqrt{3} \cdot \sqrt{21}$$

$$\sqrt{3} \cdot \sqrt{7} \cdot \sqrt{3}$$

$$\sqrt{9} \cdot \sqrt{7}$$

$$3\sqrt{7}$$