

## Exponents and Radicals

### Laws of Exponents

$$1. a^m \times a^n = a^{(m+n)}$$

$$2. \frac{a^m}{a^n} = a^{(m-n)}$$

$$3. a^{-n} = \frac{1}{a^n}$$

$$4. a^0 = 1$$

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

$$6. (abc)^n = a^n b^n c^n$$

$$7. \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

### Radicals to Exponents

$$\sqrt[n]{a^m} = a^{\frac{m}{n}}$$

### Laws of Radicals

$$1. \sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$$

$$2. r\sqrt{a} \times s\sqrt{b} = (r \times s)\sqrt{a \times b}$$

$$3. \sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$4. \frac{r\sqrt{a}}{s\sqrt{b}} = \frac{r}{s} \sqrt{\frac{a}{b}}$$

$$5. r\sqrt{a} + s\sqrt{a} = (r + s)\sqrt{a}$$