

Multiplying Radical Expressions

Simplify.

$$1) 3\sqrt{12} \cdot \sqrt{6}$$

$$18\sqrt{2}$$

$$2) \sqrt{5} \cdot \sqrt{10}$$

$$5\sqrt{2}$$

$$3) \sqrt{6} \cdot \sqrt{6}$$

$$6$$

$$4) \sqrt{5} \cdot -4\sqrt{20}$$

$$-40$$

$$5) -4\sqrt{15} \cdot -\sqrt{3}$$

$$12\sqrt{5}$$

$$6) \sqrt{20x^2} \cdot \sqrt{20x}$$

$$20x\sqrt{x}$$

$$7) \sqrt{15n^2} \cdot \sqrt{10n^3}$$

$$5n^2\sqrt{6n}$$

$$8) \sqrt{18a^2} \cdot 4\sqrt{3a^2}$$

$$12a^2\sqrt{6}$$

$$9) -3\sqrt{7r^3} \cdot 6\sqrt{7r^2}$$

$$-126r^2\sqrt{r}$$

$$10) -4\sqrt{28x} \cdot \sqrt{7x^3}$$

$$-56x^2$$

$$11) \sqrt{3}(5 + \sqrt{3})$$

$$5\sqrt{3} + 3$$

$$12) 2\sqrt{5}(\sqrt{6} + 2)$$

$$2\sqrt{30} + 4\sqrt{5}$$

$$13) -3\sqrt{3}(2 + \sqrt{6})$$

$$-6\sqrt{3} - 9\sqrt{2}$$

$$14) \sqrt{3}(-5\sqrt{10} + \sqrt{6})$$

$$-5\sqrt{30} + 3\sqrt{2}$$

$$15) \frac{-2\sqrt{15}(-3\sqrt{3} + 3\sqrt{5})}{18\sqrt{5} - 30\sqrt{3}}$$

$$16) \frac{5\sqrt{42x}(4 + 4\sqrt{7x})}{20\sqrt{42x} + 140x\sqrt{6}}$$

$$17) \frac{\sqrt{14x}(3 - \sqrt{2x})}{3\sqrt{14x} - 2x\sqrt{7}}$$

$$18) \frac{\sqrt{6n}(7n^3 + \sqrt{12})}{7n^3\sqrt{6n} + 6\sqrt{2n}}$$

$$19) \frac{\sqrt{3v}(\sqrt{6} + \sqrt{10})}{3\sqrt{2v} + \sqrt{30v}}$$

$$20) \frac{\sqrt{21r}(5 + \sqrt{7})}{5\sqrt{21r} + 7\sqrt{3r}}$$

$$21) \frac{(-2\sqrt{3} + 2)(\sqrt{3} - 5)}{-16 + 12\sqrt{3}}$$

$$22) \frac{(5 - 4\sqrt{5})(-2 + \sqrt{5})}{-30 + 13\sqrt{5}}$$

$$23) \frac{(-2 - 3\sqrt{5})(5 - \sqrt{5})}{5 - 13\sqrt{5}}$$

$$24) \frac{(\sqrt{5} - \sqrt{3})(\sqrt{5} + \sqrt{3})}{2}$$

$$25) \frac{(5\sqrt{2x} + \sqrt{5})(-4\sqrt{2x} + \sqrt{5x})}{-40x + 5x\sqrt{10} - 4\sqrt{10x} + 5\sqrt{x}}$$

$$26) \frac{(-3\sqrt{3k} + 4)(\sqrt{3k} - 5)}{-9k + 19\sqrt{3k} - 20}$$

$$27) \frac{(5 + 4\sqrt{3})(3 + \sqrt{3})}{27 + 17\sqrt{3}}$$

$$28) \frac{(3\sqrt{2} + \sqrt{5})(\sqrt{2} - 3\sqrt{5r})}{6 - 9\sqrt{10r} + \sqrt{10} - 15\sqrt{r}}$$