

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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