

## Multiplying Radical Expressions

**Simplify.**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

28)  $(3\sqrt{2} + \sqrt{5})(\sqrt{2} - 3\sqrt{5r})$

# Multiplying Radical Expressions

**Simplify.**

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

$$18\sqrt{2}$$

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

$$5\sqrt{2}$$

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

$$6$$

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

$$-40$$

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

$$12\sqrt{5}$$

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

$$20x\sqrt{x}$$

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

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

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

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

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

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

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

$$-56x^2$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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