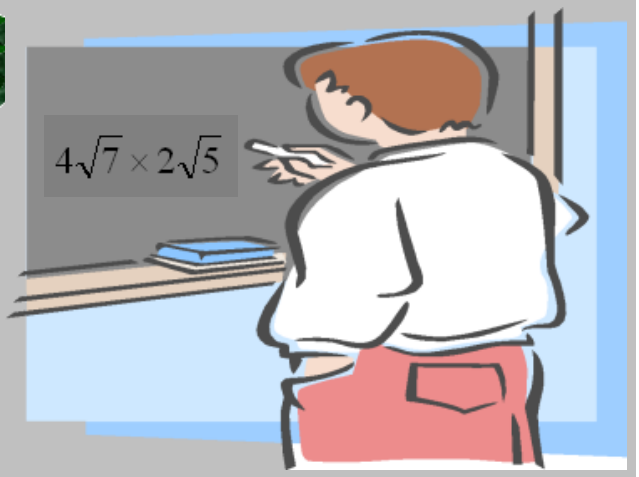
Multiplying Radicals



Calculate:

$$2\sqrt{4} \times 3\sqrt{25}$$

$2(2) \times 3(5)$

4×15

60

$$2\sqrt{4} \times 3\sqrt{25}$$

$6\sqrt{100}$

$6(10)$

60

$2x \cdot 3y$

$6xy$

Multiplying Radicals

Calculate:

$$2\sqrt{4}\times 3\sqrt{25}$$
$$= 2(2)\times 3(5)$$
$$= 4\times 15$$
$$= 60$$

Notice This!!

$$2\sqrt{4}\times 3\sqrt{25}$$
$$= 6\sqrt{100}$$
$$= 6(10)$$
$$= 60$$

**** Therefore, when multiplying Radicals, you multiply the radicands together and you multiply the numbers out front together!!**

1. $3\sqrt{6} \times 2\sqrt{15}$

$6\sqrt{90}$

$6\sqrt{9 \cdot 10}$

$18\sqrt{10}$

#1

$$3\sqrt{6}\times 2\sqrt{15}$$

$$= (3\times 2)\sqrt{6\times 15}$$

$$= 6\sqrt{90}$$

$$= 6\sqrt{9\times 10}$$

$$= 18\sqrt{10}$$

2. $3\sqrt{54} \times 4\sqrt{96}$

$3\sqrt{9 \cdot 6} \times 4\sqrt{16 \cdot 6}$

$9\sqrt{6} \times 16\sqrt{6}$

$144\sqrt{36}$

864 :)

Reduce first!

#2

$$3\sqrt{54} \times 4\sqrt{96}$$

Before multiplying, simplify your radicals!!

$$= 3\sqrt{9 \times 6} \times 4\sqrt{16 \times 6}$$

$$= 9\sqrt{6} \times 16\sqrt{6}$$

Once you have simplified your answers, then multiply your radicals!!

$$= 144(6)$$

$$= 864$$

$$= 72$$

3.

$$2\sqrt{3}(8\sqrt{2}-6\sqrt{3})$$

$16\sqrt{6} - 12\sqrt{9}$

$16\sqrt{6} - 36$

#3

$$2\sqrt{3}\left(8\sqrt{2}-6\sqrt{3}\right)$$

$$=16\sqrt{6}-12\sqrt{9}$$

$$=16\sqrt{6}-12(3)$$

$$=16\sqrt{6}-36$$

Try These:

#1 $2\sqrt{75} \times 3\sqrt{27}$

#2 $3\sqrt{2}\left(2\sqrt{12} + 3\sqrt{27}\right)$

Try These:

#1 $2\sqrt{75} \times 3\sqrt{27}$

$2\sqrt{25 \times 3} \times 3\sqrt{9 \times 3}$

$10\sqrt{3} \times 9\sqrt{3}$

$90(3)$

$= 270$

#2 $3\sqrt{2}\left(2\sqrt{12} + 3\sqrt{27}\right)$

$4 \times 3 \quad 9 \times 3$

$3\sqrt{2}\left(4\sqrt{3} + 9\sqrt{3}\right)$

$3\sqrt{2} \times 13\sqrt{3}$

$= 39\sqrt{6}$

#4

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

$(5\sqrt{1})(1\sqrt{3})$

$5\sqrt{3}$