remember $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$

ex. 1 $2\sqrt{3}(2\sqrt{6} + \sqrt{5})$

remember distributive property!

$= (2\sqrt{3})(2\sqrt{6}) + (2\sqrt{3})(\sqrt{5})$

$= 4\sqrt{18} + 2\sqrt{15}$

simplify?

$9 \cdot 2$

$= 4 \cdot 3\sqrt{2}$

$= 12\sqrt{2} + 2\sqrt{15}$

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

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

$= 6\sqrt{10} - 9\sqrt{4}$

$\sqrt{2}\sqrt{2} = 2$

$\sqrt{7}\sqrt{7} = 7$

$\sqrt{247}\sqrt{247} = 247$

$= 6\sqrt{10} - 9(2)$

$= 6\sqrt{10} - 18$

$$= 6\sqrt{10} - 18$$

3. $(5 + 3\sqrt{2})(4 - \sqrt{2})$

Ⓐ DP

$$5(4 - \sqrt{2}) + 3\sqrt{2}(4 - \sqrt{2})$$

$$= 20 - 5\sqrt{2} + 12\sqrt{2} - 3(2)$$

$$= 14 + 7\sqrt{2}$$

Ⓐ D.P.
Ⓑ F.O.I.L.
Ⓒ BOX

$\sqrt{2}\sqrt{2} = 2$

SIMPLIFY
— Like Terms

Ⓑ

First	Outside	Inside	Last
$5(4)$	$5(-\sqrt{2})$	$(3\sqrt{2})(4)$	$(3\sqrt{2})(-\sqrt{2})$

$$= 20 - 5\sqrt{2} + 12\sqrt{2} - 3\overset{\sqrt{4}}{(2)}$$

$$= 14 + 7\sqrt{2}$$

Ⓒ Box ✗

$(5 + 3\sqrt{2})(4 - \sqrt{2})$

	5	$3\sqrt{2}$
4	20	$12\sqrt{2}$
$-\sqrt{2}$	$-5\sqrt{2}$	$-3(2)$

$$= 20 + 12\sqrt{2} - 5\sqrt{2} - 6$$

$$= 14 + 7\sqrt{2}$$

$$-\sqrt{2} \rightarrow \boxed{-5\sqrt{2} \mid -3(2)} \qquad \boxed{= 14 + 7\sqrt{2}}$$

4.
$$\left(3\sqrt{x} + \sqrt{y}\right)^2 = \left(3\sqrt{x} + \sqrt{y}\right)\left(3\sqrt{x} + \sqrt{y}\right)$$

$$= 9x + 3\sqrt{xy} + 3\sqrt{xy} + y$$

$$\boxed{= 9x + 6\sqrt{xy} + y}$$

DP
FOIL
BOX

$\sqrt{x^2} = x$
$\sqrt{y^2} = y$

$$\left(3\sqrt{x} + \sqrt{y}\right)^2$$

↓ Square   ×2

$$\left(3\sqrt{x}\right)^2 + \left(3\sqrt{x}\right)\left(\sqrt{y}\right)(2) + \left(\sqrt{y}\right)^2$$

$$\boxed{9x + 6\sqrt{xy} + y}$$

$$\boxed{\text{p121 } \# \ 3-5, \ 7, 8}$$