

DRILL:

$$(x+3)(x+7) = x^2 + 7x + 3x + 21 \\ = x^2 + 10x + 21$$

4, 9, 16, ...

Ex:  $(2 + \sqrt{3})(3 + \sqrt{5}) = 6 + 2\sqrt{5} + 3\sqrt{3} + \sqrt{15}$

Ex:  $(3 - \sqrt{6})(4 + \sqrt{3}) = 12 + 3\sqrt{3} - 4\sqrt{6} - \sqrt{18}$   
 $= 12 + 3\sqrt{3} - 4\sqrt{6} - 3\sqrt{2}$

$\sqrt{18}$   
 $\sqrt{9 \cdot 2} = 3\sqrt{2}$

Ex:  $(5 + \sqrt{6})(-3 + \sqrt{6}) = -15 + \underline{5\sqrt{6}} - \underline{3\sqrt{6}} + \sqrt{36}$

$= \underline{-15} + 2\sqrt{6} + \underline{6}$

$= \boxed{-9 + 2\sqrt{6}}$

4, 9, 16, ...

$(\sqrt{3} + \sqrt{5})(\sqrt{6} - \sqrt{2}) = \sqrt{18} - \sqrt{6} + \sqrt{30} - \sqrt{10}$

$= \boxed{3\sqrt{2} - \sqrt{6} + \sqrt{30} - \sqrt{10}}$

$\sqrt{18}$   
 $\wedge$   
 $\sqrt{9\sqrt{2}}$   
 $3\sqrt{2}$

$$(4 + \sqrt{5})(3 + \sqrt{5}) = \underline{12} + \underline{4\sqrt{5}} + \underline{3\sqrt{5}} + \underline{\sqrt{25}}$$

$$= 12 + 7\sqrt{5} + 5$$

$$= \boxed{17 + 7\sqrt{5}}$$

DESMOS  
#1

994...  
DES MOS

#12

$$\begin{aligned} & \sqrt{24} \\ & \wedge \\ & = \sqrt{4} \sqrt{6} \\ & = 2\sqrt{6} \end{aligned}$$

$$\begin{aligned} & \sqrt{18} \\ & \wedge \\ & \sqrt{9} \sqrt{2} \\ & 3\sqrt{2} \end{aligned}$$

$$\begin{aligned} & \sqrt{12} \\ & \wedge \\ & \sqrt{4} \sqrt{3} \\ & 2\sqrt{3} \end{aligned}$$

$$\begin{aligned} & (\sqrt{8} + \sqrt{6})(\sqrt{3} + \sqrt{2}) = \sqrt{24} + \sqrt{16} + \sqrt{18} + \sqrt{12} \\ & = \boxed{2\sqrt{6} + 4 + 3\sqrt{2} + 2\sqrt{3}} \end{aligned}$$

$$(2\sqrt{6} + 3\sqrt{8})(3\sqrt{12} - 2\sqrt{6}) = 6\sqrt{72} - 4\sqrt{36} + 9\sqrt{96} - 6\sqrt{48}$$

$$= 6(6\sqrt{2}) - 4(6) + 9(4\sqrt{6}) - 6(4\sqrt{3})$$

$$= 36\sqrt{2} - 24 + 36\sqrt{6} - 24\sqrt{3}$$

4, 9, 16, 25, 36

$$\sqrt{72}$$

$$\sqrt{36} \sqrt{2}$$

$$6\sqrt{2}$$

$$\sqrt{96}$$

$$\sqrt{16} \sqrt{6}$$

$$4\sqrt{6}$$

$$\sqrt{48}$$

$$\sqrt{16} \sqrt{3}$$

$$4\sqrt{3}$$

DESMOS  
# 3