Math worksheet on *'Radicals - Multiplying Binomials (Values and Variables) (Level 1)'*. Part of a broader unit on *'Radicals - Multiplication Intro'*

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1 Multiply the radical expressions and simplify the answer

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

a $3c^{-1}\sqrt{5c} + 12c^3 + c\sqrt{10c} + 4c\sqrt{2}$	**b** $3c\sqrt{5c} + 12c^3 + c\sqrt{10c} - 5c\sqrt{2}$
c $3c\sqrt{5c} + 12c^3 + c\sqrt{10c} + 4c^3\sqrt{2}$	**d** $3c\sqrt{5c} - 12c^2 + c^2\sqrt{10c} + 4c^3\sqrt{2}$
e $c\sqrt{5c} - 12c^2 + c\sqrt{10c} + 4c^3\sqrt{2}$	**f** $3c\sqrt{5c} + 12c^3 + c\sqrt{10c} - 4c\sqrt{2}$

2 Multiply the radical expressions and simplify the answer

$$(2 - \sqrt{11}) \cdot (3n + \sqrt{5})$$

a $n - 3n\sqrt{11} + 2\sqrt{5} + 1$	**b** $6n^2 + 5n\sqrt{11} + 2\sqrt{5} - \sqrt{55}$
c $6n - 3n\sqrt{11} - 2\sqrt{5} + \sqrt{55}$	**d** $6n - 3n\sqrt{11} + 2\sqrt{5} - 1$
e $6n - 3n\sqrt{11} + 2\sqrt{5} - \sqrt{55}$	**f** $6n + 3n\sqrt{11} + 4\sqrt{5} - \sqrt{55}$

3 $$(\sqrt{5} - 5n\sqrt{n}) \cdot (n^2\sqrt{13} - 4n\sqrt{n})$$

Multiply the radical expressions and simplify the answer

a	**b**	**c**	**d**	**e**	**f**

4 Multiply the radical expressions and simplify the answer

$$(4x - \sqrt{2x}) \cdot (\sqrt{7x} + 5x^2)$$

a $4x\sqrt{7x} + x\sqrt{14} + 20x - 5x^2\sqrt{2x}$	**b** $4x\sqrt{7x} - x\sqrt{14} + 20x + 5x\sqrt{2x}$
c $4x\sqrt{7} - x\sqrt{14} + 20x^3 - 5x^3\sqrt{2}$	**d** $4x\sqrt{7x} - x - 20x^3 - 5x^2\sqrt{2x}$
e $4x\sqrt{7x} - x\sqrt{14} - 20x^5 - 5x^3\sqrt{2x}$	**f** $4x\sqrt{7x} - x\sqrt{14} + 20x^3 - 5x^2\sqrt{2x}$

5 Multiply the radical expressions and simplify the answer

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

a $16 + \sqrt{3} + 4\sqrt{5} - \sqrt{15}$	**b** $16 + 4\sqrt{3} - \sqrt{5} - \sqrt{15}$
c $17 + 4\sqrt{3} - 4\sqrt{5}$	**d** $16 + 4\sqrt{3} - 4\sqrt{5} - \sqrt{15}$
e $16 - 4\sqrt{3} + 4\sqrt{5} - \sqrt{15}$	**f** $1 - \sqrt{3} - 4\sqrt{5} + \sqrt{15}$

6 Multiply the radical expressions and simplify the answer

$$(\sqrt{3} + 5) \cdot (\sqrt{13} + 5r^2)$$

a $\sqrt{39} + 2r^3\sqrt{3} - 5\sqrt{13} + 25r^2$	**b** $1 + 5r^2\sqrt{3} - 5\sqrt{13} + 25r^2$
c $3\sqrt{39} + 30r^2 + 5\sqrt{13}$	**d** $\sqrt{39} + 2r^2\sqrt{3} + \sqrt{13} - 25r^2$
e $1 + 5r^2\sqrt{2} - 5\sqrt{13} + 25r^2$	**f** $\sqrt{39} + 5r^2\sqrt{3} + 5\sqrt{13} + 25r^2$

7 Multiply the radical expressions and simplify the answer

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

a $4z\sqrt{3} - 20z^2\sqrt{z} + z\sqrt{15z} - 5z^2\sqrt{5}$	**b** $4z^2\sqrt{3} - z^3 + z\sqrt{15z} - 5z^2\sqrt{5}$
c $4z\sqrt{3} + 20z\sqrt{z} - z\sqrt{15z} - 5z^2\sqrt{5}$	**d** $\sqrt{3} - 40z^2\sqrt{z} - z\sqrt{15z} + 5z^2\sqrt{5}$
e $4z^2\sqrt{3} - z^2 + z\sqrt{15z} - 5z^2\sqrt{5}$	**f** $4z^2\sqrt{3} - 20z^2\sqrt{z} + z\sqrt{15z} - 5z^2\sqrt{5}$

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