Math worksheet on *'Radicals - Adding and Subtracting - Simplification (Values and Variables) (Level 5)'*. Part of a broader unit on *'Radicals - Addition and Subtraction Intro'*

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1 Simplify the radical expressions to prepare for adding or subtracting

$$\sqrt{27} + \sqrt{48r^2c^4} - \sqrt{27rc^4}$$

a $3\sqrt{3} + rc^4 - 3c^2\sqrt{3r}$	**b** $3\sqrt{3} + 4rc^2\sqrt{3} - 3c^4\sqrt{2r}$
c $3\sqrt{3} + r^2c^3\sqrt{5} - 3c^2\sqrt{3r}$	**d** $3\sqrt{3} + 4rc^2\sqrt{3} - 3c^2\sqrt{3r}$
e $3\sqrt{4} + 4rc^2\sqrt{3} - 3c^3\sqrt{6r}$	**f** $4 + 4rc^2\sqrt{3} - 3c^2\sqrt{3r}$

2 Simplify the radical expressions to prepare for adding or subtracting

$$\sqrt[3]{88z^2x} + \sqrt[3]{704x} + \sqrt[3]{88x^2}$$

a $\sqrt[3]{9z^2x} + 4\sqrt[3]{11x} + 2\sqrt[3]{11x^2}$	**b** $3\sqrt[3]{13z^2x} + 4\sqrt[3]{11x} + 2\sqrt[3]{11x^2}$
c $5\sqrt[3]{13zx^2} + 4\sqrt[3]{11x} + 2\sqrt[3]{11x^2}$	**d** $2\sqrt[3]{11z^2x} + \sqrt[3]{9x} + 2\sqrt[3]{11x^2}$
e $\sqrt[3]{14z^3x^3} + \sqrt[3]{9x^2} + 2\sqrt[3]{11x^2}$	**f** $2\sqrt[3]{11z^2x} + 4\sqrt[3]{11x} + 2\sqrt[3]{11x^2}$

3 Simplify the radical expressions to prepare for adding or subtracting

$$\sqrt{12y^3z^2} - \sqrt{27y^3} - \sqrt{27z^4}$$

a $yz\sqrt{y^2} - 3y\sqrt{3y} - 3z^2\sqrt{3}$	**b** $2yz\sqrt{3y} - 2y^2\sqrt{3y^3} - 3z^2\sqrt{3}$
c $2yz\sqrt{3y} - 6y\sqrt{y^3} - 2z^4$	**d** $2yz\sqrt{3y} - 6y\sqrt{4y} - 3z^2\sqrt{3}$
e $2yz\sqrt{3y} - 3y\sqrt{3y} - 3z^2\sqrt{3}$	**f** $4y^3z\sqrt{4y} - 3y\sqrt{3y} - 3z^2\sqrt{3}$

4

$$\sqrt[3]{448p} + \sqrt[3]{448m^3p^4} + \sqrt[3]{56m^3p^4}$$

Simplify the radical expressions to prepare for adding or subtracting

a	**b**	**c**	**d**	**e**	**f**
$3\sqrt{9p} + 3mp^3\sqrt{4p^2} + 2mp\sqrt{7p}$	$\sqrt{9p^2} + 4mp\sqrt{7p} + 2mp\sqrt{7p}$	$4\sqrt{6p^2} + 4mp\sqrt{7p^2} + 2mp\sqrt{7p}$	$4\sqrt{7p} + 4mp\sqrt{7p} + 2mp\sqrt{7p}$	$4\sqrt{7p} + 4mp\sqrt{7p} + mp^3\sqrt{7p}$	$\sqrt{9p} + 4mp\sqrt{7p} + 2mp\sqrt{7p}$

5 Simplify the radical expressions to prepare for adding or subtracting

$$\sqrt{125y^4} + \sqrt{125p} - \sqrt{80y^3p^2}$$

a $3y\sqrt{6} + 5\sqrt{5p} - 4yp\sqrt{5y}$	**b** $5y^2\sqrt{5} + 8\sqrt{6p} - 7yp^3\sqrt{y^2}$
c $4y\sqrt{4} + 5\sqrt{5p} - 4yp\sqrt{5y}$	**d** $5y^2\sqrt{5} + 5\sqrt{8p} - y^3p\sqrt{y^2}$
e $5y^2\sqrt{5} + 5\sqrt{5p} - 4yp\sqrt{5y}$	**f** $5y + 7\sqrt{4p} - 7yp^3\sqrt{7y}$

6 Simplify the radical expressions to prepare for adding or subtracting

$$\sqrt{45x^3n^2} + \sqrt{45x^2} + \sqrt{20x^4n}$$

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

7 Simplify the radical expressions to prepare for adding or subtracting

$$\sqrt{44r^3} + \sqrt{275r^3} - \sqrt{275r^2}$$

a $5r\sqrt{9r} + 5r\sqrt{11r} - 5r\sqrt{11}$	**b** $2r\sqrt{11r} + 5r\sqrt{11r} - 8r^2\sqrt{8}$
c $r\sqrt{10r} + 5r\sqrt{11r} - 5r\sqrt{11}$	**d** $2r\sqrt{11r} + 5r\sqrt{11r} - 5r\sqrt{11}$
e $4r\sqrt{12r} + 5r\sqrt{11r} - 5r\sqrt{11}$	**f** $2r\sqrt{11r} + r\sqrt{12r^3} - 5r\sqrt{11}$