



Math worksheet on 'Radicals - Adding and Subtracting (Values and Variables) (Level 4)'. Part of a broader unit on 'Radicals - Addition and Subtraction Intro'

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1 $\sqrt[3]{56n^4m} + \sqrt[3]{189m^4} + \sqrt[3]{56n^4m^3}$

Simplify, then add or subtract the radical expressions

a	b	c	d	e
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2 Simplify, then add or subtract the radical expressions

$$\sqrt[3]{81y} - \sqrt[3]{192y^2n^2} - \sqrt[3]{192y^2n^3}$$

a $5\sqrt[3]{6y^3} - 2\sqrt[3]{2y^3n^4} - 3n\sqrt[3]{y^2}$	b $6\sqrt[3]{y^2} - 5\sqrt[3]{5y^2n} - 2n^3\sqrt[3]{6y}$
c $\sqrt[3]{3y} - 7\sqrt[3]{yn^2} - 7n\sqrt[3]{y^3}$	d $3\sqrt[3]{3y} - 4\sqrt[3]{3y^2n^2} - 4n\sqrt[3]{3y^2}$
e $\sqrt[3]{6y^3} - 7\sqrt[3]{2y^2n} - 4n\sqrt[3]{6y^2}$	

3 Simplify, then add or subtract the radical expressions

$$\sqrt{20yz^2} - \sqrt{45yz^3} + \sqrt{45y^4z^4}$$

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

4 Simplify, then add or subtract the radical expressions

$$\sqrt[3]{135r} - \sqrt[3]{40r^2d^3} + \sqrt[3]{320rd^4}$$

a $2\sqrt[3]{8r^3} - 2d^2\sqrt[3]{6r^4} + 7d\sqrt[3]{2rd}$	b $5\sqrt[3]{7r} - 4d\sqrt[3]{r} + d^3\sqrt[3]{2r^2d}$
c $5\sqrt[3]{r} - 3d^2\sqrt[3]{3r^2} + 7d\sqrt[3]{8rd}$	d $3\sqrt[3]{2r^3} - d^3\sqrt[3]{7r} + 2d^3\sqrt[3]{rd}$
e $3\sqrt[3]{5r} - 2d\sqrt[3]{5r^2} + 4d\sqrt[3]{5rd}$	f $4\sqrt[3]{5r^3} - 4d^3\sqrt[3]{r} + 2d\sqrt[3]{2r^3d}$

5 Simplify, then add or subtract the radical expressions

$$\sqrt[3]{40r^4} + \sqrt[3]{320m} - \sqrt[3]{320m^4r^3}$$

a $r^2\sqrt[3]{5r} + 7\sqrt[3]{4m} - 2mr\sqrt[3]{4m}$	b $r^3\sqrt[3]{5r} + 4\sqrt[3]{6m^2} - mr\sqrt[3]{8m}$
c $r^2\sqrt[3]{r} + 3\sqrt[3]{8m} - 3m^3r\sqrt[3]{4m}$	d $2r\sqrt[3]{5r} + 4\sqrt[3]{5m} - 4mr\sqrt[3]{5m}$
e $r^2\sqrt[3]{3r^2} + \sqrt[3]{2m^3} - 4m^2r\sqrt[3]{8m}$	f $5r\sqrt[3]{2r^3} + 7\sqrt[3]{8m} - 5mr\sqrt[3]{3m^2}$

6 Simplify, then add or subtract the radical expressions

$$\sqrt{63p^4d^2} + \sqrt{112p^2} - \sqrt{63p^2d^4}$$

a $p^4d\sqrt{6} + 2p^2\sqrt{5} - p^3d^2\sqrt{6}$	b $3p^2d\sqrt{7} + 4p\sqrt{7} - 3pd^2\sqrt{7}$
c $3pd^2\sqrt{10} + 3p\sqrt{9} - pd^2\sqrt{4}$	d $pd\sqrt{5} + 6p\sqrt{9} - 4p^2d^3\sqrt{8}$
e $6p^3d\sqrt{8} + 2p\sqrt{4} - pd^4\sqrt{9}$	f $p^2d\sqrt{10} + 4p^2\sqrt{8} - 2p^2d\sqrt{9}$

7 Simplify, then add or subtract the radical expressions

$$\sqrt{8b^3y^2} - \sqrt{32by^4} - \sqrt{50by^2}$$

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