

# Homework

Simplify each of the following expressions completely:

<p>1. <math>-3\sqrt{150}</math>  <math>-3\sqrt{25 \cdot 6}</math>  <math>-3 \cdot 5\sqrt{6}</math>  <math>-15\sqrt{6}</math></p>	<p>2. <math>5\sqrt{125x^3y^6}</math>  <math>5\sqrt{25 \cdot 5x^2 \cdot xy^2 \cdot xy^2}</math>  <math>5 \cdot 5 \cdot x \cdot y \cdot y \cdot y \sqrt{5x}</math>  <math>25xy^3\sqrt{5x}</math></p>	<p>3. <math>\sqrt{32} + \sqrt{36} - \sqrt{18}</math>  <math>\sqrt{16 \cdot 2} + \sqrt{36} - \sqrt{9 \cdot 2}</math>  <math>4\sqrt{2} + 6 - 3\sqrt{2}</math>  <math>1\sqrt{2} + 6</math></p>
<p>4. <math>\sqrt{98} - \sqrt{72} + \sqrt{32}</math>  <math>\sqrt{49 \cdot 2} - \sqrt{36 \cdot 2} + \sqrt{16 \cdot 2}</math>  <math>7\sqrt{2} - 6\sqrt{2} + 4\sqrt{2}</math>  <math>5\sqrt{2}</math></p>	<p>5. <math>3\sqrt{2} + \sqrt{50} - 4\sqrt{8}</math>  <math>3\sqrt{2} + \sqrt{25 \cdot 2} - 4\sqrt{4 \cdot 2}</math>  <math>3\sqrt{2} + 5\sqrt{2} - 4 \cdot 2\sqrt{2}</math>  <math>3\sqrt{2} + 5\sqrt{2} - 8\sqrt{2}</math>  <math>0</math></p>	<p>6. <math>-3\sqrt{12x^3} + 2x\sqrt{300x}</math>  <math>-3\sqrt{4 \cdot 3x^2 \cdot x} + 2x\sqrt{100 \cdot 3 \cdot x}</math>  <math>-3 \cdot 2 \cdot x \sqrt{3x} + 2x \cdot 10 \sqrt{3x}</math>  <math>-6x\sqrt{3x} + 20x\sqrt{3x}</math>  <math>14x\sqrt{3x}</math></p>

Solve 7-8 by using square roots. No decimal answers, only exact, radical answers!

<p>7. <math>-21 = 15 - 2x^2</math>  <math>-36 = -2x^2</math>  <math>\pm \sqrt{18} = \sqrt{x^2}</math>  <math>\pm \sqrt{9 \cdot 2} = x</math>  <math>\pm 3\sqrt{2} = x</math></p>	<p>8. <math>2021 = \frac{1}{3}(x+14)^2</math>  <math>\pm \sqrt{60} = \sqrt{(x+14)^2}</math>  <math>\pm \sqrt{4 \cdot 15} = x+14</math>  <math>\pm 2\sqrt{15} = x+14</math>  <math>-14 \pm 2\sqrt{15} = x</math></p>
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Solve 9-10 by the quadratic formula. No decimal answers, only exact, radical answers!

<p>9. <math>9 = 7x^2 - 2x</math>  <math>0 = 7x^2 - 2x - 9 = 0</math>  <math>x = \frac{2 \pm \sqrt{(-2)^2 - 4(7)(-9)}}{2(7)}</math>  <math>x = \frac{2 \pm \sqrt{256}}{14}</math>  <math>x = \frac{18}{14} = \frac{9}{7}</math>  <math>x = \frac{2 \pm 16}{14}</math>  <math>x = \frac{-14}{14} = -1</math></p>	<p>10. <math>8h^2 + 8 = 6 - 9h</math>  <math>8h^2 + 9h + 2 = 0</math>  <math>x = \frac{-9 \pm \sqrt{9^2 - 4(8)(2)}}{2(8)}</math>  <math>x = \frac{-9 \pm \sqrt{81 - 64}}{16}</math>  <math>x = \frac{-9 \pm \sqrt{17}}{16}</math></p>
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