

# Beginning College Algebra

## Evaluating radicals.

Perform the operations indicated.

1)  $2\sqrt{6} + 3\sqrt{6} + \sqrt{24} - 2\sqrt{54}$ .

**Solution:**  $2\sqrt{6} + 3\sqrt{6} + 2\sqrt{6} - 6\sqrt{6} = \sqrt{6}$

2)  $\sqrt{3} + 4\sqrt{3} - 2\sqrt{3}$

3)  $\sqrt{24} + \sqrt{54} - \sqrt{96}$

4)  $\sqrt{48xy^2} + y\sqrt{75x} + \sqrt{3x(x-9y)^2}$

5)  $\sqrt{3} + \sqrt{27} + 3\sqrt{27} - \sqrt{75} + \sqrt[4]{9}$

6)  $\sqrt{128} - 2\sqrt{50} + \sqrt{72} - \sqrt{18}$

7)  $b\sqrt{a} + x\sqrt{a} - y\sqrt{a^3}$

8)  $\sqrt{\frac{1}{2}} + \sqrt{\frac{2}{3}} - \sqrt{\frac{9}{2}}$

9)  $2\sqrt{\frac{5}{3}} + \frac{1}{6}\sqrt{60} + \sqrt{15} + \sqrt{\frac{3}{5}}$

10)  $20(3)^{\frac{1}{2}} - 4(3)^{\frac{1}{2}}$

11)  $(248)^{\frac{1}{2}} + (27)^{\frac{1}{2}} + (48)^{\frac{1}{2}} - (3)^{\frac{1}{2}}$

12)  $(405)^{\frac{1}{2}} - (180)^{\frac{1}{2}}$

13)  $(135)^{\frac{1}{3}} - (40)^{\frac{1}{3}}$

# Evaluating radicals - solutions

$$2) 3\sqrt{3}$$

$$3) \sqrt{24} + \sqrt{54} - \sqrt{96} = 2\sqrt{6} + 3\sqrt{6} - 4\sqrt{6} = \sqrt{6}$$

$$4) x\sqrt{x}$$

$$5) 9\sqrt{3}$$

$$6) \sqrt{2}$$

$$7) (b + x - ay)\sqrt{a}$$

$$8) \frac{1}{3}\sqrt{6} - \sqrt{2}$$

$$9) \frac{11}{5}\sqrt{15}$$

$$10) 20(3)^{\frac{1}{2}} - 4(3)^{\frac{1}{2}} = (20 - 4)(3)^{\frac{1}{2}} = 16(3)^{\frac{1}{2}}$$

$$11) 15(3)^{\frac{1}{2}}$$

$$12) 3(5)^{\frac{1}{2}}$$

$$13) 5^{\frac{1}{3}}$$