

Math 080
Roots, Radicals, and Complex numbers Worksheet

Evaluate or simplify.

1. $\sqrt{(102/309)^2}$

2. $\sqrt{x^2 + 28x + 49}$

3. $-(4/49)^{-1/2}$

4. $-3b^{3/4}(5b^{1/2} + 4)$

5. $\left(\frac{81a^{4/3}b^{1/2}}{5a^2b^{3/2}}\right)^{2/3}$

6. $\sqrt{24x^5y^2}$

7. $\frac{\sqrt{27x^5}}{\sqrt{15x^3y^4}}$

8. $x\sqrt{27x^5y^2} - x^3\sqrt{3xy^2} + 2\sqrt{x^8y^2}$

9. $(\sqrt{y} + 6\sqrt{x})(\sqrt{y} + \sqrt{x})$

Rationalize.

10. $\sqrt[4]{8x}$

11. $3\sqrt{2} + \frac{3}{\sqrt{2}} + \sqrt{50}$

12. $5/(\sqrt{x} + 2)$

13. $\sqrt{4x^2 + 3} - 4 = 0$

14. $\sqrt{x + 2} = 7 + \sqrt{2x - 1}$

15. $(7 - \sqrt{2})(2 + \sqrt{-3})$

16. $\frac{\sqrt{2}}{5 - \sqrt{-3}}$

17. i^{243}