

In #1 through #3, simplify the expression. Assume that all variables are positive.

1.  $\sqrt{16x^4}$  1. \_\_\_\_\_

2.  $\sqrt[3]{125y^3}$  2. \_\_\_\_\_

3.  $(\sqrt{3}-\sqrt{5})(\sqrt{3}+\sqrt{5})$  3. \_\_\_\_\_

In #4 and #5, write the expression in radical notation.

4.  $7^{\frac{2}{3}}$  4. \_\_\_\_\_

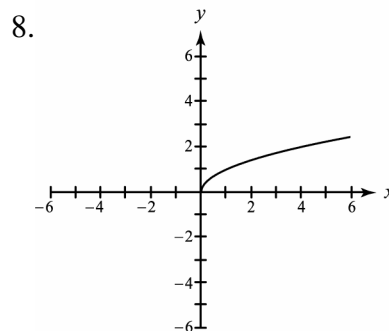
5.  $x^{-\frac{2}{3}}$  5. \_\_\_\_\_

In #6 and #7, evaluate the expression by hand.

6.  $(-32)^{\frac{2}{5}}$  6. \_\_\_\_\_

7.  $9^{-\frac{3}{2}}$  7. \_\_\_\_\_

8. Given the graph of  $y = \sqrt{x}$ , graph  $y = \sqrt{x+2} - 4$ .



8.

In #9 through #14, simplify the expression. Assume that all variables are positive.

9.  $(3x^2y^{\frac{1}{3}})^3$  9. \_\_\_\_\_

10.  $\left(\frac{x^2}{y^3}\right)^{-\frac{1}{2}}$  10. \_\_\_\_\_

11.  $\sqrt{x^3} \cdot \sqrt{x^5}$  11. \_\_\_\_\_

12.  $\frac{\sqrt{8}}{\sqrt{2}}$  12. \_\_\_\_\_

13.  $5\sqrt{2} + 3\sqrt{3} - 4\sqrt{2}$  13. \_\_\_\_\_

14.  $5\sqrt[3]{16} - 3\sqrt[3]{2}$  14. \_\_\_\_\_

15. Solve  $\sqrt{20-2x} = x+2$ . 15. \_\_\_\_\_

16. Rationalize the denominator of  $\frac{1}{\sqrt{7}-\sqrt{5}}$ . 16. \_\_\_\_\_

17. One leg of a right triangle has length 8 inches and the hypotenuse has length 10 inches. Find the length of the third side. 17. \_\_\_\_\_

18. Find the distance between  $(2, -4)$  and  $(-2, 4)$ . 18. \_\_\_\_\_

In #19 and #20, write the complex expression in standard form.

19.  $(3-5i)-(8-2i)$  19. \_\_\_\_\_

20.  $\frac{3+5i}{3+i}$  20. \_\_\_\_\_