

1. Simplify  $\sqrt[4]{112x^4y^7}$ .

2. Convert  $(7t)^{-\frac{2}{5}}$  to radical form.

3. Convert  $\sqrt[8]{2x^4}$  to rational exponent form.

Simplify the given expression.

4.  $(3\sqrt{5} - 2)(\sqrt{5} + 6)$

5.  $(4\sqrt{2} - 5)(\sqrt{2} - 3)$

6.  $(2\sqrt{3} + 6)(\sqrt{3} + 4)$

7.  $(5 - \sqrt{2})^3$

8.  $(1 + \sqrt{3})^3$

9.  $\sqrt{\frac{108x^5}{3x^3}}$

10.  $\sqrt{\frac{98x^9}{2x^5}}$

11.  $\sqrt{\frac{300x^7}{3x^5}}$

Find the following sums or differences.

12. Sum of  $\frac{1}{2\sqrt{81}}$  and  $\frac{1}{2\sqrt[3]{64}}$

14. Difference of  $\frac{2}{-5\sqrt[3]{8}}$  and  $\frac{3}{\sqrt{16}}$

13. Sum of  $\frac{1}{5\sqrt{16}}$  and  $\frac{1}{3\sqrt[4]{16}}$

15. Difference of  $\frac{-1}{\sqrt[3]{27}}$  and  $\frac{2}{3\sqrt{49}}$

For the following problems, let  $f(x) = x^2 + 4$  and  $g(x) = 2x - 3$ 

16. Find  $(f - g)(x)$

17. Find  $(f \cdot g)(x)$

18. Find  $g(f(x))$

19. Find  $(f \circ g)(5)$