In Exercises 1 and 2, find the indicated $n$th root(s) of $a$.

1. $n = 6, \ a = 64$
   - $\sqrt[6]{64} = 2$

2. $n = 5, \ a = 243$
   - $\sqrt[5]{243} = 3$

In Exercises 3 and 4, find the dimensions of the cube. Check your answer.

3. Volume = $729 \text{ cm}^3$
   - $s^3 = 729$
   - $s = 9$

4. Volume = $1000 \text{ yd}^3$
   - $s^3 = 1000$
   - $s = 10$

In Exercises 5–7, evaluate the expression.

5. $-\sqrt[3]{-512}$
   - $-(-8) = 8$

6. $729^{\frac{1}{6}}$
   - $3$

7. $(-625)^{\frac{1}{4}}$
   - Not a real number

In Exercises 8 and 9, rewrite the expression in rational exponent form.

8. $\left(\sqrt[3]{-53}\right)^4$
   - $(-53)^{\frac{4}{3}}$

9. $\left(\frac{2}{110}\right)^{\frac{2}{9}}$
   - $\frac{2^{\frac{2}{9}}}{110^{\frac{2}{9}}}$
In Exercises 10 and 11, rewrite the expression in radical form.

10. \((34)^{3/2}\)

11. \((41)^{7/4}\)

In Exercises 12–17, evaluate the expression.

12. \((-128)^{3/7}\)

13. \((-25)^{5/2}\)

14. \(1000^{4/3}\)

15. \(\left(\frac{1}{125}\right)^{2/3}\)

16. \((343)^{-1/3}\)

17. \((\frac{1}{64})^{3/2}\)

18. The radius of a sphere is given by the equation \(r = \left(\frac{3V}{4\pi}\right)^{1/3}\), where \(V\) is the volume of the sphere. Find the radius, to the nearest centimeter, of a sphere that has a volume of 268 cubic centimeters. Use 3.14 for \(\pi\).