

# Radicals & Rational Exponents

**Matching:**

A.  $m^{\frac{1}{2}} - 2$

C.  $(m-2)^{\frac{1}{2}}$

E.  $\sqrt[3]{3}$

B.  $(2m)^{\frac{1}{2}}$

D.  $\sqrt{3}$

F.  $\sqrt[3]{9}$

\_\_\_\_ 1.  $3^{\frac{1}{3}}$

\_\_\_\_ 4.  $\sqrt{m} - 2$

\_\_\_\_ 2.  $\sqrt{m-2}$

\_\_\_\_ 5.  $3^{\frac{1}{2}}$

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

\_\_\_\_ 6.  $\sqrt{2m}$

**True / False:**

\_\_\_\_ 7.  $y^{\frac{5}{3}} = \sqrt[5]{y^3}$

\_\_\_\_ 9.  $y^{\frac{5}{3}} = (\sqrt[3]{y})^5$

\_\_\_\_ 8.  $y^{\frac{5}{3}} = \sqrt[3]{y^5}$

\_\_\_\_ 10.  $y^{\frac{5}{3}} = \sqrt{y^{\frac{5}{3}}}$

Perform the operation, then leave your answer as both a radical and as a rational exponent.

11.  $6^{\frac{1}{2}} + 6^{\frac{1}{2}}$

12.  $2\sqrt{3} + 7\sqrt{3}$

Perform the operation, then leave your answer as both a radical and as a rational exponent if possible.

13.  $32^{\frac{1}{2}} + 27^{\frac{1}{3}}$

14.  $16^{\frac{1}{4}} \cdot 16^{\frac{2}{3}}$

15.  $7^{\frac{3}{8}} \cdot \sqrt[4]{7^2}$

16.  $9^{\frac{1}{4}} \cdot 9^{\frac{1}{2}}$

17.  $3\sqrt{5} + 6\sqrt{5}$

18.  $\frac{2^{\frac{3}{4}}}{2^{\frac{1}{2}}}$

19.  $\left(x^{\frac{1}{2}} \cdot y^{\frac{2}{5}}\right) \cdot \left(x^{\frac{2}{3}} y^{\frac{1}{2}}\right)$

20.  $\sqrt[4]{x^{\frac{2}{3}}}$

21.  $\sqrt{7^2} + 7^2$

22.  $4\sqrt{3} + 5\sqrt{3}$

23.  $\frac{3^{\frac{5}{6}}}{3^{\frac{1}{3}}}$

24.  $\left(y^{\frac{1}{4}} z^{\frac{2}{3}}\right) \left(y^{\frac{1}{2}} z^{\frac{1}{4}}\right)$