

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. $\sqrt[3]{9}$

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

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

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

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

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

___ 6. $\sqrt{2m}$

True / False:

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

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

$\sqrt{6} + \sqrt{6}$

$2\sqrt{6}$ or $2 \cdot 6^{\frac{1}{2}}$

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

$\sqrt{32} + \sqrt[3]{27}$
 $\sqrt{16 \cdot 2} + 3$

$4\sqrt{2} + 3$
 or
 $4 \cdot 2^{\frac{1}{2}} + 3$

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

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

$7^{\frac{7}{8}}$ or $\sqrt[8]{7^7}$

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

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

$9\sqrt{5}$ or $9 \cdot 5^{\frac{1}{2}}$

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

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

$(x^{\frac{1}{2}} \cdot x^{\frac{2}{3}})(y^{\frac{2}{5}} \cdot y^{\frac{1}{2}})$

$(x^{\frac{1}{2} + \frac{2}{3}})(y^{\frac{2}{5} + \frac{1}{2}})$

$x^{\frac{7}{6}} y^{\frac{9}{10}}$ or $\sqrt[6]{x^7} \cdot \sqrt[10]{y^9}$

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

21. $\sqrt{7^2} + 7^2$
 $\sqrt{49} + 49$
 $7 + 49$

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

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

$3^{\frac{5}{6} - \frac{1}{3}} = 3^{\frac{1}{2}}$ or $\sqrt{3}$

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