

6-6 Rational Exponents

Simplify each expression.

55. $\frac{c^{\frac{2}{3}}}{c^{\frac{1}{6}}}$

ANSWER:

$$c^{\frac{1}{2}}$$

57. $\sqrt{23} \cdot \sqrt[3]{23^2}$

ANSWER:

$$23\sqrt[6]{23}$$

59. $\sqrt{\sqrt{81}}$

ANSWER:

$$3$$

60. $\sqrt[4]{\sqrt{256}}$

ANSWER:

$$2$$

62. $\frac{xy}{\sqrt[3]{z}}$

ANSWER:

$$\frac{xy\sqrt[3]{z^2}}{z}$$

70. **CCSS CRITIQUE** Ayana and Kenji are

simplifying $\frac{x^{\frac{3}{4}}}{x^{\frac{1}{2}}}$. Is either of them correct? Explain your reasoning.

Ayana

$$\begin{aligned}\frac{x^{\frac{3}{4}}}{x^{\frac{1}{2}}} &= x^{\frac{3}{4} + \frac{1}{2}} \\ &= x^{\frac{3}{4} + \frac{2}{4}} \\ &= x^{\frac{5}{4}}\end{aligned}$$

Kenji

$$\begin{aligned}\frac{x^{\frac{3}{4}}}{x^{\frac{1}{2}}} &= x^{\frac{3}{4} - \frac{1}{2}} \\ &= x^{\frac{3}{4} - \frac{2}{4}} \\ &= x^{\frac{1}{4}}\end{aligned}$$

ANSWER:

No; Ayana added the exponents and Kenji divided the exponents. The exponents should have been subtracted.