6.1–6.3 Quiz

Check It Out
Progress Check
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Simplify the expression. *(Section 6.1)*

1. $\sqrt{20}$
2. $\sqrt{\frac{11}{81}}$
3. $\frac{4 - \sqrt{12}}{2}$
4. $\frac{-6 + \sqrt{45}}{3}$

Evaluate the expression when $x = 2$, $y = -3$, and $z = 6$. *(Section 6.1)*

5. $\sqrt{x + y^2 z}$
6. $\sqrt{3xz - y^2}$

Simplify. Write your answer using only positive exponents. *(Section 6.2)*

7. $3^2 \cdot 3^4$
8. $(k^4)^3$
9. $(4y)^{-2}$
10. $\left(\frac{r}{2}\right)^3$

Simplify. *(Section 6.3)*

11. $\sqrt[3]{27}$
12. $16^{1/4}$
13. $512^{2/3}$
14. $4^{5/2}$

15. **CEDAR CHEST** You store blankets in a cedar chest. What is the volume of the cedar chest? *(Section 6.1)*

16. **CRITICAL THINKING** Is the set of irrational numbers closed under subtraction? If not, find a counterexample. *(Section 6.1)*

Unit of Mass	Mass
gigagram	10^9 grams
megagram	10^6 grams
kilogram	10^3 grams
hectogram	10^2 grams
dekagram	10^1 grams
decigram	10^{-1} gram
centigram	10^{-2} gram
milligram	10^{-3} gram
microgram	10^{-6} gram
nanogram	10^{-9} gram

17. **METRIC UNITS** The table shows several units of mass. *(Section 6.2)*

   a. How many times larger is a kilogram than a nanogram? Write your answer using only positive exponents.

   b. How many times smaller is a milligram than a hectogram? Write your answer using only positive exponents.

   c. Which is greater, 10,000 milligrams or 1000 decigrams? Explain your reasoning.