Practice 1.1.1: Working with Radicals and Properties of Real Numbers B

For problems 1–3, use the properties of radicals to rewrite and reduce each expression.

1. $\sqrt{5^6 \cdot 24^3}$

2. $\sqrt{\frac{a^3}{b^2}} \cdot \sqrt{\frac{a^7}{b}}$

3. $\sqrt{\frac{30^3}{14^5}}$

For problems 4–8, reduce each expression, then determine whether each expression is rational or irrational. Round decimal approximations to the nearest hundredth, if needed.

4. $\frac{\sqrt{8} \cdot \sqrt{6} + \sqrt{7}}{\sqrt{14}}$

5. $9 - \sqrt{955}$

6. $\sqrt{\frac{1}{5}}\left(\sqrt{\frac{242}{10}} + \sqrt{\frac{147}{15}}\right)$

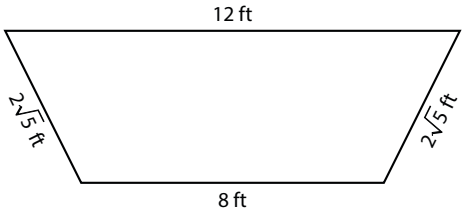
7. $\sqrt{\frac{24}{7}}\left(1 + \sqrt{\frac{9}{56}}\right) - \sqrt{\frac{64}{63}}$

8. $\sqrt{64} + \sqrt{544}$

continued

Use the given information to solve problems 9 and 10.

9. Alisha is building a wall around her garden. The wall is to be made of three rows of bricks, layered lengthwise. Using the given figure, find the perimeter of the wall. If each brick is 6 inches long, how many bricks does she need to complete the wall? Round your answer to the nearest whole number.



10. Mr. Ammad bought a circular playground parachute for gym class, with a total combined area A of 4π square meters. What is the radius of the parachute? Round your answer to the nearest hundredth. Is the radius rational or irrational? *Note*: $r = \sqrt{\frac{A}{\pi}}$.