UNIT 1 • RELATIONSHIPS BETWEEN QUANTITIES AND EXPRESSIONS
Lesson 1: Working with Radicals and Properties of Real Numbers

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

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

1. $\sqrt{a^9 b^2}$

2. $\sqrt{\dfrac{130}{26}} \bullet \sqrt{\dfrac{45}{36}}$

3. $\sqrt{\dfrac{m^5}{n^6}}$

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. $\sqrt{54} + \sqrt{600}$

5. $\sqrt{\dfrac{4}{3}}\left(\sqrt{\dfrac{49}{12}} - \sqrt{\dfrac{32}{3}} \right)$

6. $2 + \sqrt{576}$

7. $\sqrt{\dfrac{7}{2}}\left(5 + \sqrt{\dfrac{63}{288}} \right) - \sqrt{\dfrac{700}{8}}$

8. $\dfrac{\sqrt{6} \bullet \sqrt{3} - \sqrt{2}}{\sqrt{3}}$

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Use the given information to solve problems 9 and 10.

9. Belinda is fencing a new area for her cattle. Using the given figure, find the perimeter of the area she wants to fence. If the fence is to be made of four strands of barbed wire, minus an 8-foot gate, how many feet of wire does she need? Round your answer to the nearest foot.
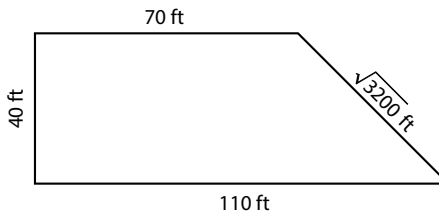
10. Malcolm is an artist. He bought a single square canvas with an area of 3 square meters. What is the perimeter of the canvas? Is the perimeter rational or irrational? Note that the length of one side of the square is the square root of the area.