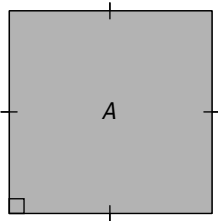


2.4 Determining Square Roots of Rational Numbers

MathLinks 9, pages 72–81

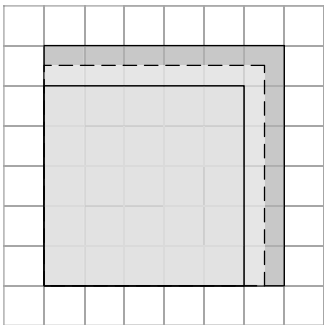
Key Ideas Review

Select words from column B to complete the statements in column A.

A		B
1. The side of a square is equal to _____.		a) the product of two equal rational factors
2. The area of a square is equal to _____.		b) an exact answer
3. The square root of a perfect square is _____.		c) an approximation
4. The square root of a non-perfect square determined with a calculator is _____.		d) the square root of the area
5. A perfect square can be expressed as _____.		e) the square of the side

Check Your Understanding

6. a) Use the diagram to identify a rational number with a square root between 5 and 6.



- b) Using the same thinking, what rational number has a square root between 3 and 4?

7. Estimate and calculate the number that has the given square root.

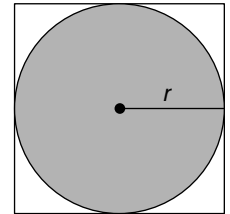
a) 2.2 b) 8.7

c) 11.3 d) 0.92

8. Estimate and calculate the area of each square, given its side length.

a) 14.7 cm b) 2.3 km

9. Is each of the following rational numbers a perfect square? Explain.
- a) $\frac{4}{9}$ b) 0.4
- c) 0.81 d) $\frac{1}{2}$
10. Determine whether each rational number is a perfect square. Show your thinking.
- a) 0.16 b) $\frac{90}{49}$
- c) 0.001 d) $\frac{8}{18}$
11. Evaluate.
- a) $\sqrt{289}$ b) $\sqrt{0.0361}$
- c) $\sqrt{1225}$ d) $\sqrt{5.29}$
12. Calculate the side length of each square from its area.
- a) 2.25 cm² b) 361 m²
13. Calculate each square root.
- a) $\sqrt{25}$, $\sqrt{36}$ b) $\sqrt{49}$, $\sqrt{64}$
- c) $\sqrt{0.16}$, $\sqrt{0.25}$ d) $\sqrt{0.64}$, $\sqrt{0.81}$
14. Use your answers to #13 to help estimate each square root to the specified number of decimal places.
- a) $\sqrt{30}$, to the nearest tenth
- b) $\sqrt{52}$, to the nearest tenth
- c) $\sqrt{0.18}$, to the nearest hundredth
- d) $\sqrt{0.78}$, to the nearest hundredth
15. A water fountain has a square pool with a surface area of 5.29 m². What is the length of the side of the pool?
16. A square has an area of 225 cm². What is the radius of the largest circle that can fit inside the square? Show your thinking.



17. Chu needs carpet for a square room with an area of 15 m². The store sells carpet from rolls 3.8 m wide. Will the store be able to install the carpet without a seam? Justify your answer.