

Practice 3-1

Exploring Square Roots and Irrational Numbers

Find the two square roots of each number.

1. 81

2. $\frac{9}{49}$

3. $\frac{1}{121}$

Find each square root. Round to the nearest tenth if necessary.

4. $\sqrt{130}$

5. $\sqrt{8}$

6. $\sqrt{144}$

7. $\sqrt{182}$

8. $\sqrt{256}$

9. $\sqrt{301}$

Identify each number as *rational* or *irrational*.

10. $\sqrt{16}$

11. $\sqrt{11}$

12. $\frac{4}{5}$

13. $0.\overline{712}$

14. -8

15. $\sqrt{3}$

16. 5.2

17. $-\sqrt{25}$

Use $s = 20\sqrt{273 + T}$ to estimate the speed of sound s in meters per second for each Celsius temperature T . Round to the nearest integer.

18. 37°C

19. -1°C

20. 15°C

Find the value of each expression.

21. $\sqrt{(49)^2}$

22. $(\sqrt{169})^2$

23. $\sqrt{(2.7)^2}$

Estimate the value of each expression to the nearest integer.

24. $\sqrt{5}$

25. $-\sqrt{4}$

26. $\sqrt{3}$

Activity Lab 3-1 Exploring Square Roots and Irrational Numbers

Use your calculator to find the square root of each integer below. Round each answer to the nearest thousandth. The first ten are done for you.

N	\sqrt{N}	N	\sqrt{N}	N	\sqrt{N}
2	1.414	12		22	
3	1.732	13		23	
4	2.000	14		24	
5	2.236	15		25	
6	2.449	16		26	
7	2.646	17		27	
8	2.828	18		28	
9	3.000	19		29	
10	3.162	20		30	
11	3.317	21		31	

1. Use the square roots in the table to find each product. Round the product to the nearest thousandth.

- a. $\sqrt{2} \times \sqrt{3}$ _____ b. $\sqrt{2} \times \sqrt{4}$ _____ c. $\sqrt{2} \times \sqrt{5}$ _____
 d. $\sqrt{3} \times \sqrt{4}$ _____ e. $\sqrt{3} \times \sqrt{5}$ _____ f. $\sqrt{2} \times \sqrt{13}$ _____

2. Look at your answers in Exercise 1. Compare them to the square roots of other numbers in the table. What pattern do you see?

3. Choose two sets of two numbers from the table. Multiply to see if your conjecture is true for these numbers.
