Review for Mastery
Estimating Square Roots

To locate a square root between two integers, refer to the table.

Number	1	2	3	4	5	6	7	8	9	10
Square	1	4	9	16	25	36	49	64	81	100
Number	11	12	13	14	15	16	17	18	19	20
Square	121	144	169	196	225	256	289	324	361	400

Locate $\sqrt{260}$ between two integers.

260 is between the perfect squares 256 and 289: $\quad$ 256 $\underline{\quad}$ < 260 $\underline{\quad}$ < 289 $\underline{\quad}$

So: $\quad \sqrt{256} < \sqrt{260} < \sqrt{289}$

And: $\quad$ 16 $\quad$ < $\sqrt{260}$ < 17

Use the table to complete the statements.

1. _____ < 39 < _____

_____ < $\sqrt{39}$ < _____

____ < $\sqrt{39}$ < ____

2. _____ < 130 < _____

_____ < $\sqrt{130}$ < _____

____ < $\sqrt{130}$ < ____

After locating a square root between two integers, you can determine which of the two integers the square root is closer to.

27 is between the perfect squares 25 and 36: $\quad$ 25 $\underline{\quad}$ < 27 $\underline{\quad}$ < 36 $\underline{\quad}$

So: $\quad \sqrt{25} < \sqrt{27} < \sqrt{36}$

And: $\quad$ 5 $\quad$ < $\sqrt{27}$ < 6

The difference between 27 and 25 is 2; the difference between 36 and 27 is 9.
So, $\sqrt{27}$, is closer to 5.

$$25 < 27 < 36$$
$$\quad 2 \qquad 9$$

Complete the statements.

3. 100 $\quad$ < 106 < 121

_____ < $\sqrt{106}$ < _____

_____ < $\sqrt{106}$ < _____

106 − 100 = _____

121 − 106 = _____

$\sqrt{106}$ is closer to _____ than _____

4. _____ < 250 < _____

_____ < $\sqrt{250}$ < _____

_____ < $\sqrt{250}$ < _____

250 − _____ = _____

_____ − 250 = _____

$\sqrt{250}$ is closer to _____ than _____

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LESSON **Homework and Practice**
4F *Finding Square Roots*

Each square root is between two integers. Name the integers.

1. $\sqrt{10}$ **2.** $\sqrt{24}$ **3.** $\sqrt{51}$ **4.** $\sqrt{39}$

_____   _____   _____   _____

5. $\sqrt{66}$ **6.** $\sqrt{30}$ **7.** $\sqrt{78}$ **8.** $\sqrt{87}$

_____   _____   _____   _____

Use a calculator to find each value. Round to the nearest tenth.

9. $\sqrt{18}$ **10.** $\sqrt{63}$ **11.** $\sqrt{19}$ **12.** $\sqrt{41}$

_____   _____   _____   _____

13. $\sqrt{53}$ **14.** $\sqrt{98}$ **15.** $\sqrt{54}$ **16.** $\sqrt{72}$

_____   _____   _____   _____

17. $\sqrt{83}$ **18.** $\sqrt{120}$ **19.** $\sqrt{200}$ **20.** $\sqrt{489}$

_____   _____   _____   _____

21. The distance a person can see at sea is measured in miles by using the
formula $d = \sqrt{\dfrac{3}{2}h}$, where *h* is the height in ft above sea level. About how many
miles can a person see that is 8 feet above sea level? Round the answer to the
nearest tenth of a mile.

_____

22. The length of the hypotenuse of a right triangle is the square root of the sum of the
squares of the measures of the other two legs of the triangle. Approximate the
length of the hypotenuse of a right triangle if the legs have measures 12 and 15.

_____

23. At an accident scene, a police officer may determine the rate of speed, *r*, in mi/h,
of the car by using the following formula $r = \sqrt{20\ell}$, where ℓ is length of the skid
marks. How fast was a car going if the skid marks at the scene are 180 ft long?

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