

## Antilogarithms

(Adapted from Intermediate Algebra (8th edition) by Lial, Homsby, McGinnis.)

In Example 1(a) on page 687, the number 327.1 whose common logarithm is 2.5147, is called the common **antilogarithm** (abbreviated *antilog*) of 2.5147. In the same way 437,000, in Example 1(b), is the common antilogarithm of 5.6405.

Note From Example 1,

$$\begin{array}{ccc} \text{antilogarithm} & & \text{logarithm} \\ \log \overbrace{327.1} & = & \overbrace{2.5147} . \end{array}$$

In exponential form, this is written as

$$\begin{array}{ccc} \text{logarithm} & & \text{antilogarithm} \\ 10^{\overbrace{2.5147}} & = & \overbrace{327.1} , \end{array}$$

which shows that the logarithm 2.5147 is an exponent. A common logarithm is the exponent on 10 that produces the antilogarithm.

With a Math Lab Calculator, find the antilogarithm of each logarithm. Do not round your calculator answer.

(a) 3.6503

(b) -1.3696

(c) .6064

(d) .9842

(e) -4.0002

In general,  $\text{antilog } x = 10^x$ . Some calculators have a  $10^x$  key. With other calculators, we must use the **INV** (or  $2^{\text{nd}}$ ) and **log** keys to find antilogarithms. **INV** (or  $2^{\text{nd}}$ ) indicates “inverse,” so the **INV** (or  $2^{\text{nd}}$ ) key followed by the **log** key gives the inverse of the logarithm, which is an exponential. Most scientific calculators will work by one of the methods we have described.

### Example 2 Finding Common Antilogarithms

Find the common antilogarithm of each of the following.

(a) 2.6454

$$\text{antilog } 2.6454 = 10^{2.6454} \approx 441.9773361 \text{ or } 441.97734$$

(b) -2.3686

$$\text{antilog } -2.3686 = 10^{-2.3686} \approx .004279569 \text{ or } .0042796$$

(c) 1.5203

$$\text{antilog } 1.5203 = 10^{1.5203} \approx 33.13599378 \text{ or } 33.135994$$

← ← ← WORK PROBLEMS AT THE SIDE.

<b>Answers:</b>	(a) 4469.922568 or 4469.9226	(b) .042697259 or .0426973	(c) 4.040173354 or 4.0401734	(d) 9.642729855 or 9.6427299	(e) .000099954 or .0001
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