

**STUDY LINK**  
**2·4**
**Multiplying by Powers of 10**

**Some Powers of 10**

$10^4$	$10^3$	$10^2$	$10^1$	$10^0$	.	$10^{-1}$	$10^{-2}$	$10^{-3}$	$10^{-4}$
$10 * 10 * 10 * 10$	$10 * 10 * 10$	$10 * 10$	10	1	.	$\frac{1}{10}$	$\frac{1}{10} * \frac{1}{10}$	$\frac{1}{10} * \frac{1}{10} * \frac{1}{10}$	$\frac{1}{10} * \frac{1}{10} * \frac{1}{10} * \frac{1}{10}$
10,000	1,000	100	10	1	.	0.1	0.01	0.001	0.0001

Multiply.

1.  $4.9 * 0.001 =$  \_\_\_\_\_

2. \_\_\_\_\_  $= 7.8 * 0.01$

3.  $30 * 10^{-1} =$  \_\_\_\_\_

4. \_\_\_\_\_  $= 7 * 10^{-2}$

5.  $0.15 * 10^3 =$  \_\_\_\_\_

6. \_\_\_\_\_  $= 1.9 * 100$

7.  $37.6 * 10^2 =$  \_\_\_\_\_

8.  $42.8 * 10^{-3} =$  \_\_\_\_\_

 9. Mathematician Edward Kasner asked his 9-year-old nephew to invent a name for the number represented by  $10^{100}$ . The boy named it a *googol*. Later, an even larger number was named—a *googolplex*. This number is represented by  $10^{\text{googol}}$ , or  $10^{10^{100}}$ .

 10. The speed of computer memory and logic chips is measured in nanoseconds. A nanosecond is one-billionth of a second, or  $10^{-9}$  second. Write this number in standard form. \_\_\_\_\_

 11. Light travels about 1 mile in 0.000005 seconds. If a spacecraft could travel at this speed, it would travel almost  $10^6$  miles in 5 seconds. About how far would this spacecraft travel in 50 seconds? \_\_\_\_\_ miles

**Practice**

Mentally calculate your change from \$10.

12. Cost: \$4.75; Change: \_\_\_\_\_

13. Cost: \$3.98; Change: \_\_\_\_\_

14. Cost: \$0.89; Change: \_\_\_\_\_

15. Cost: \$8.46; Change: \_\_\_\_\_