

MODULE  
15

## Exponents and Scientific Notation

## Module Quiz: B

1. Write  $2.6 \times 10^4$  in standard notation.  
26,000
2. The population of a large U.S. city is 1,703,210. Write this population in scientific notation.  
 $1.703210 \times 10^6$
3. Find the value of  $(-6)^3$ .  
-216
4. When changing 67,430,000 to scientific notation, how many places is the decimal point moved?  
7
5. Let  $x$  be the first factor in an expression in scientific notation. Describe the possible values of  $x$ .  
 $1 \leq x < 10$
6. Write the standard notation for a distance of  $9.302 \times 10^{10}$  miles.  
93,020,000,000
7. A number between 0 and 1 is written in scientific notation. The following term describes the exponent. Choose True or False for each term.
- |                    |                                       |  |
|--------------------|---------------------------------------|--|
| A integer          | <input checked="" type="radio"/> True | <input type="radio"/> False            |
| B whole number     | <input type="radio"/> True            | <input checked="" type="radio"/> False |
| C positive integer | <input type="radio"/> True            | <input checked="" type="radio"/> False |
| D negative integer | <input checked="" type="radio"/> True | <input type="radio"/> False            |
8. What is the scientific notation for a length of 0.0000923 centimeter?  
A  $9.23 \times 10^{-6}$  cm   $92.3 \times 10^{-5}$  cm  
B  $9.23 \times 10^{-5}$  cm   $923 \times 10^{-5}$  cm
9. Simplify the expression  $(7 - 2)^2 + (6 - 2)^3$ .  
 $25 + 64 = 89$
10. A dollar bill is about 0.00011 meter thick. What is this thickness in scientific notation?  
 $1.1 \times 10^{-4}$  m
11. A distance of  $6.5 \times 10^{-8}$  is multiplied by 10. The result is written in scientific notation. What is the new exponent?  
-7
12. A square garden has an area of 1,600 square feet. How long is each side of the garden?  
40 ft
13. The following term could describe the number of yards gained or lost in a football game. Choose True or False for each term.
- |                   |                                       |                             |
|-------------------|---------------------------------------|-----------------------------|
| A rational number | <input checked="" type="radio"/> True | <input type="radio"/> False |
| B whole number    | <input checked="" type="radio"/> True | <input type="radio"/> False |
| C real number     | <input checked="" type="radio"/> True | <input type="radio"/> False |
| D integer         | <input checked="" type="radio"/> True | <input type="radio"/> False |

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# Exponents and Scientific Notation

## Module Quiz: B

14. Why is this number not in scientific notation?

$36.5 \times 10^8$

Not less than 10

15. Write  $3.65 \times 10^5$  in standard notation.

365,000

16. What power of ten makes this statement true?

$78,000,000,000 = 7.8 \times 10^{10}$

17. Write your answer in scientific notation.

$(6.4 \times 10^3) + (5.2 \times 10^4)$

$5.84 \times 10^4$

18. Round this population figure to two nonzero digits. Then write it in scientific notation.

186,453,000 people

$1.86453 \times 10^8$

$1.9 \times 10^8$  or  $\nearrow$

19. Change a length of 0.0000843 meter to scientific notation.

$8.43 \times 10^{-6} \text{ m}$

20. Write a diameter of  $7.024 \times 10^{-5}$  centimeter in standard notation.

0.00007024 cm

21. Write a decimal between 0.0006 and 0.0007. Then write the number in scientific notation.

sample 0.00065;  $6.5 \times 10^{-4}$

22. A small organism with a length of  $7.5 \times 10^{-6}$  meter tripled in size. Write the new length in standard notation.

~~$2.2 \times 10^{-5} \text{ m}$~~

0.000022 m

For 23–26, use the table.

Size (meters)	
water molecule	$3.2 \times 10^{-10}$
typical virus	$7.5 \times 10^{-8}$
small transistor	$1.6 \times 10^{-5}$
grain of salt	$1.6 \times 10^{-4}$
large ant	$2.5 \times 10^{-2}$
height of Mount Everest	$8.9 \times 10^3$
diameter of moon	$3.5 \times 10^6$
diameter of sun	$1.4 \times 10^9$

23. How many zeros are needed to write the diameter of the sun in standard notation?

8

24. Write the diameter of the transistor in standard notation.

0.000016 m

25. How many digits are there in the standard notation for the height of Mount Everest?

4

26. An object is 100 times greater than the grain of salt. Describe the size of this object in scientific notation.

$1.6 \times 10^{-2} \text{ m}$

27. Arrange the numbers in order from greatest to least.

$4.\bar{3}, \frac{\pi}{4}, \sqrt{75}, \frac{20}{13}$

28. Write your answer in scientific notation.

$(5.1 \times 10^7) + (1.3 \times 10^6)$

$5.23 \times 10^7$