Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Chapter 10 Final Review (Part 1)

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. The steps Antonio took to write 4.0×10^{-3} in standard form are given below. What should Antonio change in order to write the number correctly?

$$4.1 \times 10^{-3} = 4.100$$
$$= 4100$$

   a. Keep 4.1 and attach three zeroes at the end.
   b. Move the decimal point one place to the right and attach three zeroes at the end of 41.
   c. Multiply 10 times –3 and then multiply the product by 4.1.
   d. Move the decimal point three places to the left.

2. The mass of a grain of sand is about 10^{-3} gram. About how many grains of sand are there in a 2-kilogram bag of sand?
   a. 1,000
   b. 2,000
   c. 200,000
   d. 2,000,000

3. The body length of a daddy long-legs spider is about 0.000002 kilometer. Write this length in scientific notation.
   a. 2.0×10^{-6} kilometer
   b. 2.0×10^{-5} kilometer
   c. 2.0×10^{5} kilometer
   d. 2.0×10^{-6} kilometer

Name the word that matches the definition given.

4. A product of repeated factors.
   a. power
   b. base
   c. exponent
   d. scientific notation
   e. square root
   f. marginal frequency

5. The ____ of a power is the common factor.
   a. power
   b. base
   c. exponent
   d. scientific notation
   e. square root
   f. marginal frequency

6. The ____of a power indicates the number of times a base is used as a factor.
   a. power
   b. base
   c. exponent
   d. scientific notation
   e. square root
   f. marginal frequency

7. A number is written in ____ when it is represented as the product of a factor and a power of 10. The factor must be greater than or equal to 1 and less than 10.
   a. power
   b. base
   c. exponent
   d. scientific notation
   e. square root
   f. marginal frequency

Evaluate the expression.

8. -3^5
   a. –15
   b. –125
   c. 243
   d. –243

9. $6 + 8 \bullet (-2)^2$
   a. 56
   b. 262
   c. 38
   d. –26

10. $\left| \left(-\frac{1}{4^2} \right) \div \left(\frac{1}{8^3} \right) \right|$
   a. –32
   b. $-\frac{1}{8192}$
   c. 32
   d. $\frac{1}{8192}$

11. 4.2^0
   a. 0
   b. 4.2
   c. 1
   d. 0.42

12. $\frac{1}{3^7} \bullet \frac{1}{3^{-2}}$
   a. 243
   b. $\frac{1}{243}$
   c. –243
   d. $-\frac{1}{243}$

13. $(-6)^{-3}$
   a. $-\frac{1}{36}$
   b. 216
   c. $-\frac{1}{18}$
   d. $-\frac{1}{216}$

Simplify the expression.

14. $(1.8c)^4$
   a. $7.2c^4$
   b. $7.2c$
   c. $1.8c^4$
   d. $10.4976c^4$

15. $2^4 \bullet 2^2 - \left(2^4\right)^2$
   a. –224
   b. –192
   c. 0
   d. 0.25

Simplify the expression. Write your answer as a power.

16. $5^9 \bullet 5^7$

a. 5^{16}
c. 25^{16}
b. 5^{63}
d. 16^5

17. $\left(\frac{4}{7}\right)^5 \bullet \left(\frac{4}{7}\right)^9$

a. $\left(\frac{4}{7}\right)^{14}$
c. $\left(\frac{16}{49}\right)^{14}$
b. $\left(\frac{4}{7}\right)^{45}$
d. $\left(\frac{8}{7}\right)^{14}$

18. $(-1.1) \bullet (-1.1)^4$

a. 2.2^5
c. $(-1.1)^4$
b. $(-1.1)^5$
d. $(-2.2)^5$

19. $\frac{s^5}{s^2}$

a. s^{10}
c. 3^s
b. s^7
d. s^3

20. $\frac{\pi^5}{\pi^3}$

a. π^{15}
c. 2
b. π^2
d. π^8

21. $\frac{7^9 \bullet 7^4}{7^3}$

a. 7^{12}
c. 7^{36}
b. 7^{33}
d. 7^{10}

22. $\frac{m^{27}}{m^{15} \bullet m^9}$

a. m^3
c. m^{21}
b. m^{51}
d. m^{33}

23. Write the power with a base of 7 that is equal to 49^{-4}.

a. 7^{-3}
c. 7^{-5}
b. 7^{-2}
d. 7^{-8}

Write the number in standard form.

24. 3.2×10^6
    a. 320,000
    b. 19,200,000
    c. 3,200,000
    d. 32,000,000

25. 6.133×10^2
    a. 613.3
    b. 61.33
    c. 6,133
    d. 1,226.6

26. 8.5×10^{-2}
    a. 0.085
    b. 0.85
    c. 0.17
    d. 0.0085

Write the number in scientific notation.

27. 0.0000000536
    a. 0.536×10^{-7}
    b. 5.36×10^{-9}
    c. 5.36×10^8
    d. 5.36×10^{-8}

28. A cow can produce up to 370,000 liters of methane and other gases in a year. Write this number in scientific notation.
    a. 0.37×10^6 L
    b. 3.7×10^{-5} L
    c. 37×10^4 L
    d. 3.7×10^5 L

Order the numbers from least to greatest.

29. 8.5×10^4, $\frac{855,000}{10}$, 8500
    a. 8500, 8.5×10^4, $\frac{855,000}{10}$
    b. 8500, $\frac{855,000}{10}$, 8.5×10^4
    c. 8.5×10^4, 8500, $\frac{855,000}{10}$
    d. $\frac{855,000}{10}$, 8.5×10^4, 8500

Chapter 10 Final Review (Part 1)
Answer Section

MULTIPLE CHOICE

1. D
2. D
3. A
4. A
5. B
6. C
7. D
8. D
9. C
10. C
11. C
12. B
13. D
14. D
15. B
16. A
17. A
18. B
19. D
20. B
21. D
22. A
23. D
24. C
25. A
26. A
27. D
28. D
29. A

Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Chapter 10 Final Review (Part 2)

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Write your answer in standard form.

____ 1. There are 1.0×10^5 centimeters in one kilometer. How many centimeters are there in 7.6 kilometers?
a. 760,000 cm
b. 76,000 cm
c. 7,600,000 cm
d. 0.000076 cm

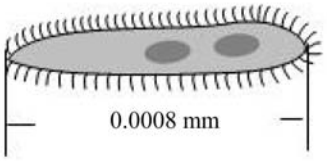
____ 2. A cow can produce up to 3.7×10^5 liters of methane and other gases in a year. How many liters can a herd of 100 cows produce in a year?
a. 3,700,000 L
b. 37,000,000 L
c. 370,000,000 L
d. 3,700 L

Order the numbers from least to greatest.

____ 3. 8.75×10^{-14}, 4.16×10^{-13}, 7.34×10^{-14}
a. 7.34×10^{-14}, 4.16×10^{-13}, 8.75×10^{-14}
b. 8.75×10^{-14}, 7.34×10^{-14}, 4.16×10^{-13}
c. 4.16×10^{-13}, 8.75×10^{-14}, 7.34×10^{-14}
d. 7.34×10^{-14}, 8.75×10^{-14}, 4.16×10^{-13}

____ 4. 6.86×10^{22}, 6.63×10^{22}, 7.38×10^{-22}
a. 6.86×10^{22}, 6.63×10^{22}, 7.38×10^{-22}
b. 6.63×10^{22}, 7.38×10^{-22}, 6.86×10^{22}
c. 7.38×10^{-22}, 6.63×10^{22}, 6.86×10^{22}
d. 7.38×10^{-22}, 6.86×10^{22}, 6.63×10^{22}

____ 5. What is the length of the bacterium in scientific notation?



a. 8×10^3 mm
b. 8×10^4 mm
c. 0.8×10^3 mm
d. 8×10^{-4} mm

____ 6. Each year, more than 289,000,000 gallons of water are used to make man-made snow at a ski resort. Write this number in scientific notation.
a. 0.289×10^7 gal
b. 2.89×10^8 gal
c. 2.89×10^7 gal
d. 2.89×10^{-8} gal

Multiply. Write your answer in scientific notation.

____ 7. $\left(7 \times 10^{5}\right) \times \left(8 \times 10^{7}\right)$

a. 5.6×10^{35}
c. 5.6×10^{13}
b. 5.6×10^{12}
d. 5.6×10^{11}

____ 8. $\left(2 \times 10^{7}\right) \times \left(1 \times 10^{8}\right)$

a. 3×10^{15}
c. 2×10^{15}
b. 2×10^{16}
d. 2×10^{56}

____ 9. $\left(8.7 \times 10^{-5}\right) \times \left(4 \times 10^{-6}\right)$

a. 3.48×10^{-11}
c. 3.48×10^{-12}
b. 3.48×10^{30}
d. 3.48×10^{-10}

____ 10. $\left(4 \times 10^{6}\right) \times \left(1.9 \times 10^{4}\right)$

a. 7.6×10^{24}
c. 5.9×10^{11}
b. 7.6×10^{10}
d. 7.6×10^{11}

____ 11. $\left(3 \times 10^{-6}\right) \times \left(2 \times 10^{-5}\right)$

a. 6×10^{-11}
c. 6×10^{30}
b. 5×10^{-11}
d. 6×10^{-12}

____ 12. $\left(6 \times 10^{-5}\right) \times \left(8 \times 10^{8}\right)$

a. 4.8×10^{4}
c. 4.8×10^{3}
b. 4.8×10^{2}
d. 1.4×10^{4}

____ 13. $\left(5.5 \times 10^{-4}\right) \times \left(8 \times 10^{-8}\right)$

a. 4.4×10^{-12}
c. 4.4×10^{-13}
b. 4.4×10^{32}
d. 4.4×10^{-11}

Add or subtract. Write your answer in scientific notation.

____ 14. $8.25 \times 10^{-7} - 3.43 \times 10^{-8}$

a. 7.907×10^{-7}
c. 7.907×10^{-6}
b. 4.82×10^{-15}
d. 7.907×10^{-8}

Divide. Write your answer in scientific notation.

____ 15. $(8.7 \times 10^{7}) \div (4.35 \times 10^{7})$

a. 2.0×10^{1}

b. 5.0×10^{-1}

c. 2.0×10^{-1}

d. 2.0×10^{0}

Chapter 10 Final Review (Part 2)
Answer Section

MULTIPLE CHOICE

1. A
2. B
3. D
4. C
5. B
6. B
7. C
8. C
9. D
10. B
11. A
12. A
13. D
14. A
15. D