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Part III

Printed Test Bank

Name:_____

Chapter 1 Test A

Date:_____

1. How any *hundreds, tens,* and *ones* are in the following sum? **1.** _____

$$\begin{array}{r} 174 \\ +\,566 \\ \hline \end{array}$$

2. Write in exponential form. **2.** _____

$c \cdot c \cdot c \cdot c \cdot c \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d$

Simplify each expression, first as a base to a single power, then, if possible, as a decimal.

3. $3^2 \cdot x^6 \cdot x^{23}$ **3.** _____

4. $\dfrac{y^9}{y^4}$ **4.** _____

5. $\dfrac{4^7}{4^2}$ **5.** _____

Write the following expressions so that no answer includes negative exponents. Assume the variables are nonzero.

6. x^{-11} **6.** _____

7. 7^{-2} **7.** _____

8. $\dfrac{s^{-3}}{s^{-10}}$ **8.** _____

9. $(y^4)^{-1}$ **9.** _____

10. $\dfrac{7t^0}{t^{-2}}$ **10.** _____

11. $(6x^2)(4x^2)^2$ **11.** _____

Use your calculator to evaluate the following expressions. If the value is not exact, round your answer to four decimal places.

12. $\dfrac{1}{6} + \dfrac{1}{2} + \dfrac{3}{4}$ **12.** _____

13. $\sqrt{5}$ **13.** _____

14. $\dfrac{\pi}{2}$ **14.** _____

Write each decimal number in scientific notation.

15. $3{,}234{,}005$ **15.** _____

16. 0.0021055 **16.** _____

Convert each number into decimal notation.

17. 8.86×10^{8} **17.** _____

18. 1.7053×10^{-3} **18.** _____

Simplify the following and write your answers in scientific notation.

19. $\dfrac{(5.4\times10^{-7})(7.1\times10^{6})}{3.20\times10^{-10}}$ **19.** _____

20. $\dfrac{(4.9\times10^{17})(1.3\times10^{-2})}{5.6\times10^{18}}$ **20.** _____

21. Find the mean of the following set of data. **21.** Mean: _____

11.26 sec 11.23 sec 11.30 sec 11.29 sec AE: _____

Assume the data above is used to predict the average time it takes a runner to run the 100-m dash. Use the mean from the data set to compute the absolute error and relative error if the actual time to run the 100 meters is 11.26 seconds. Round to two decimal places if necessary. RE: _____

Determine the number of significant digits.

22. $7{,}998{,}540$ **22.** _____

23. 0.0841 **23.** _____

Use dimensional analysis to answer the following.

24. A small airplane flies 120 miles between two cities at an average speed of $150\ \dfrac{\text{miles}}{\text{hour}}$. How long did the trip take? **24.** _____

25. Assume that a woman spends an average of three hours per day watching television. Approximately how many hours of television could a woman watch in her lifetime if her life expectancy is 83 years? A year has about 365 days. **25.** _____

Name:_____

Chapter 1 Test B

Date:_____

1. How many *hundreds, tens,* and *ones* are in the following sum? **1.** _____

$$\begin{array}{r} 855 \\ +\,741 \\ \hline \end{array}$$

2. Write in exponential form. **2.** _____

$s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s \cdot t \cdot t \cdot t \cdot t \cdot t$

Simplify each expression, first as a base to a single power, then, if possible, as a decimal.

3. $4^2 \cdot x^{14} \cdot x^3$ **3.** _____

4. $\dfrac{u^{19}}{u^{24}}$ **4.** _____

5. $\dfrac{7^{107}}{7^{106}}$ **5.** _____

Write the following expressions so that no answer includes negative exponents. Assume the variables are nonzero.

6. y^{-231} **6.** _____

7. 1^{-1000} **7.** _____

8. $\dfrac{x^{13}}{x^{-12}}$ **8.** _____

9. $(m^2)^{-3}$ **9.** _____

10. $\dfrac{2t^7}{t^{-2}}$ **10.** _____

11. $(36x^{12})(3x^3)^2$ **11.** _____

Use your calculator to evaluate the following expressions. If the value is not exact, round your answer to four decimal places.

12. $\dfrac{1}{8} + \dfrac{2}{3} + \dfrac{5}{7}$ **12.** _____

13. $2\sqrt{7}$ **13.** _____

14. $\dfrac{e}{2}$ **14.** _____

Write each decimal number in scientific notation.

15. 850.23 **15.** _____

16. 0.9992 **16.** _____

Convert each number into decimal notation.

17. 10.22×10^{5} **17.** _____

18. 270×10^{-4} **18.** _____

Simplify the following and write your answers in scientific notation.

19. $\dfrac{(7.7 \times 10^{7})(3.3 \times 10^{16})}{16.5 \times 10^{-1}}$ **19.** _____

20. $\dfrac{(4.2 \times 10^{12})(9.1 \times 10^{-32})}{10.5 \times 10^{8}}$ **20.** _____

21. Find the mean of the following set of data. **21.** Mean: _____

60 61 62 59 63 61 AE: _____

Assume the data above is used to predict the average number of heartbeats per minute of a young man out for a stroll. Use the mean from the data set to compute the absolute error and relative error if the actual number of heartbeats per minute is 62. Round to two decimal places if necessary. RE: _____

Determine the number of significant digits.

22. 1,000,000,001 **22.** _____

23. 0.9093 **23.** _____

Use dimensional analysis to answer the following.

24. A student drove home after finals to visit his parents. If it took him 3 hours to get home while traveling at an average speed of $47\ \frac{\text{miles}}{\text{hour}}$, how far is the student's home from his college? **24.** _____

25. A leaky faucet wastes three quarts of water per day. Assuming this loss rate doesn't change, approximately how many gallons of water is wasted per year? There are four quarts per gallon and about 365 days per year. **25.** _____

Name:_____

Chapter 1 Test C

Date:_____

1. How many *hundreds, tens,* and *ones* are in the following sum? **1.** _____

$$\begin{array}{r} 441 \\ +\,607 \\ \hline \end{array}$$

(a) 1; 4; 8 **(b)** 10; 4; 8 **(c)** 4; 8; 1 **(d)** 8; 4; 10 **(e)** None of these

2. Write in exponential form. **2.** _____

$r \cdot r \cdot r \cdot r \cdot r \cdot s \cdot s \cdot s \cdot s \cdot s \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t$

(a) $5r \cdot 5s \cdot 7t$ **(b)** $r^5 s^5 t^6$ **(c)** $r^5 s^4 t^7$

(d) $r^5 s^5 t^7$ **(e)** None of these

Simplify each expression, first as a base to a single power, then, if possible, as a decimal.

3. $5^3 \cdot x^{23} \cdot x^{32}$ **3.** _____

(a) $125x^{55}$ **(b)** $25x^{55}$ **(c)** $125x^{65}$ **(d)** $25x^{56}$ **(e)** None of these

4. $\dfrac{y^{14}}{y^{-3}}$ **4.** _____

(a) y^{11} **(b)** y^{-42} **(c)** y^{17} **(d)** y^{-17} **(e)** None of these

5. $\dfrac{-8^2}{8^0}$ **5.** _____

(a) 8 **(b)** −8 **(c)** 64 **(d)** −64 **(e)** None of these

Write the following expressions so that no answer includes negative exponents. Assume the variables are nonzero.

6. x^{-13} **6.** _____

(a) $-13x$ **(b)** $\dfrac{1}{x-13}$ **(c)** $\dfrac{1}{x^{13}}$ **(d)** $-x^{13}$ **(e)** None of these

7. 3^{-3} **7.** _____

(a) −9 **(b)** 27 **(c)** $\dfrac{1}{9}$ **(d)** $\dfrac{1}{27}$ **(e)** None of these

8. $\dfrac{m^3}{m^{-17}}$ **8.** _____

(a) m^{20} **(b)** $\dfrac{1}{m^{20}}$ **(c)** $-\dfrac{m^2}{17}$ **(d)** $-17m^{20}$ **(e)** None of these

9. $(z^{14})^{-2}$ **9.** _____

(a) z^{28} **(b)** $-28z$ **(c)** $\dfrac{1}{z^{28}}$ **(d)** $-2z^{14}$ **(e)** None of these

10. $\dfrac{9u^3}{u^3}$ **10.** _____

(a) $9u^6$ **(b)** 9 **(c)** $\dfrac{9}{u^6}$ **(d)** $9u$ **(e)** None of these

11. $(5x)(4x^2)^2$ **11.** _____

(a) $40x^5$ **(b)** $20x^5$ **(c)** $160x^6$ **(d)** $80x^5$ **(e)** None of these

Use your calculator to evaluate the following expressions. If the value is not exact, round your answer to four decimal places.

12. $\dfrac{1}{5}+\dfrac{2}{3}+\dfrac{3}{15}$ **12.** _____

(a) $\dfrac{16}{15}$ **(b)** $\dfrac{17}{12}$ **(c)** $1\dfrac{1}{12}$ **(d)** $\dfrac{17}{15}$ **(e)** None of these

13. $\sqrt{6}$ **13.** _____

(a) 2.4494 **(b)** 2.4495 **(c)** 2.45 **(d)** 2.2361 **(e)** None of these

14. $\dfrac{\pi^2}{4}$ **14.** _____

(a) 2.4649 **(b)** 2.4674 **(c)** 0.7854 **(d)** 2.4673 **(e)** None of these

Write each decimal number in scientific notation.

15. 5,784,900,000 **15.** _____

(a) 5.7849×10^{8} **(b)** 5.7849×10^{9} **(c)** 5.7849×10^{10}

(d) 5.7849×10^{-9} **(e)** None of these

16. 0.007048 **16.** _____

(a) 7.048×10^{-3} **(b)** 7.048×10^{-2} **(c)** 70.48×10^{-3}

(d) 7.048×10^{3} **(e)** None of these

Convert each number into decimal notation.

17. 9.247×10^{9} **17.** _____

(a) 9,247,000,000,000 **(b)** 9,247,000 **(c)** 924,700,000

(d) 9,247,000,000 **(e)** None of these

18. 5.61×10^{-6} **18.** _____

(a) 0.000000561 **(b)** 0.00000561 **(c)** 0.0000561

(d) 0.000561 **(e)** None of these

Simplify the following and write your answers in scientific notation.

19. $\dfrac{(11.2\times10^{-5})(2.4\times10^{6})}{12.8\times10^{-8}}$ **19.** _____

(a) 2.1×10^{-9} **(b)** 21×10^{9} **(c)** 2.1×10^{10}

(d) 2.1×10^{9} **(e)** None of these

20. $\dfrac{(9.8\times10^{11})(2.6\times10^{-12})}{22.4\times10^{33}}$ **20.** _____

(a) 1.1375×10^{-33} **(b)** 1.1375×10^{-34} **(c)** 113.75×10^{-34}

(d) 1.1375×10^{34} **(e)** None of these

21. Find the mean of the following set of data. **21.** _____

1.24 min 1.22 min 1.21 min 1.25 min

Assume the data above is used to predict the average time it takes a swimmer to complete two laps in a pool. Use the mean from the data set to compute the absolute error and relative error if the actual time it takes the swimmer to complete the two laps is 1.26 minutes. Round to two decimal places if necessary.

(a) Mean: 1.23 min; AE: 0.03 min; RE: $\approx 2.38\%$

(b) Mean: 1.23 min; AE: 0.03 min; RE: $\approx 1.19\%$

(c) Mean: 1.22 min; AE: 0.04 min; RE: $\approx 3.17\%$

(d) Mean: 1.24 min; AE: 0.02 min; RE: $\approx 1.59\%$

(e) None of these

Determine the number of significant digits.

22. 5,200,010 **22.** _____

(a) 2 **(b)** 3 **(c)** 6 **(d)** 7 **(e)** None of these

23. 0.0040307 **23.** _____

(a) 1 **(b)** 3 **(c)** 6 **(d)** 8 **(e)** None of these

Use dimensional analysis to answer the following.

24. The winner of a drag race had a time of 4.52 seconds. The length of the track is one quarter mile. Find the approximate average speed of the winning car. **24.** _____

(a) 3.3 $\frac{\text{miles}}{\text{hour}}$ **(b)** 79.6 $\frac{\text{miles}}{\text{hour}}$ **(c)** 199 $\frac{\text{miles}}{\text{hour}}$

(d) 1085 $\frac{\text{miles}}{\text{hour}}$ **(e)** None of these

25. Assume that a man spends 20 minutes per day in the shower. Approximately how many hours does the man spend in the shower during his lifetime if his life expectancy is 84 years? A year has about 365 days, and a day is about 24 hours. **25.** _____

(a) 170 hours **(b)** 10,220 hours **(c)** 1533 hours

(d) 613,200 hours **(e)** None of these