M7A Chapter 4 Practice Test

Write the letter for the correct answer in the blank at the right of each question.

1. Which expression is equivalent to $(-3)(-3)(-3)(-3)$?

   A. -3^3 B. $(-3)^4$ C. 4^{-3} D. 1^{-3}

   1. _____ *B* _____

2. A golf ball is dropped from the top of a cliff. After 6 seconds the ball hits the ground. The distance in feet the ball traveled can be estimated by $16(6)^2$. About how far did the ball drop?

   $16(6)^2 = 16(36)$

   2. _____ 576 ft _____

3. Evaluate $a^3 - b^2$ if $a = 3$ and $b = 6$.

   $3^3 - 6^2$

   $27 - 36 = -9$

   3. _____ -9 _____

4. Which expression represents $\dfrac{1}{5^6}$ using a negative exponent?

   4. _____ 5^{-6} _____

5. What is the value of $5k^{-4}$ if $k = -2$?

   $5(-2)^{-4} = \dfrac{5}{(-2)^4} = \dfrac{5}{16}$

   5. _____ $\dfrac{5}{16}$ _____

6. Which expression is equivalent to $7^3 \cdot 7^{-4}$?

   $\dfrac{7 \cdot 7 \cdot 7}{7 \cdot 7 \cdot 7 \cdot 7} = \dfrac{1}{7} = 7^{-1}$

   6. _____ $\dfrac{1}{7}$ or 7^{-1} _____

7. Which expression is equivalent to the product of $m^{-4} \cdot m$?

   $= m^{-4+1} = m^{-3}$

   7. _____ m^{-3} or $\dfrac{1}{m^3}$ _____

8. An astronomer finds that the diameter of asteroid A is roughly 10^{-2} kilometer, whereas the diameter of asteroid B is roughly 10^5 kilometers. About how many times as great is the diameter of asteroid B than asteroid A?

   $\dfrac{B}{A}$ $\dfrac{10^5}{10^{-2}} = 10^{5-(-2)} = 10^7$

   8. _____ 10^7 TIMES GREATER _____

   $(-2)^1 = -2$
   $(-2)^2 = 4$
   $(-2)^3 = -8$
   $(-2)^4 = 16$
   $(-2)^5 = -32$
   $(-2)^6 = 64$

M7A Chapter 4 Practice Test (continued) EXAMPLE ANSWERS

$b^3 \cdot b$ $\dfrac{b^7}{b^3}$

9. Which expression is equivalent to b^4?

9. _____

10. A city recorded a total of 1.56×10^5 hours that its citizens walked to raise money for charity. Which value expresses this number in standard form?

1.56000.

10. 156,000

11. Which number is greater than 2.7×10^4?

1.1×10^4

$40,000,000$ 9.99999×10^3

11. 1.4×10^5 or B

12. Which value for 43,900,450 miles is the best estimate for this distance?

F. 4×10^{-5} mile   H. 43.9×10^5 miles

G. 4.4×10^{-7} mile   J. 4×10^7 miles

12. J

14.40×10^3
7.94×10^3
22.34×10^3
2.23×10^4

13. The average weight of an African elephant is 1.44×10^4 pounds and that of a white rhinoceros is 7.94×10^3 pounds. What is the approximate combined weight of these two animals?
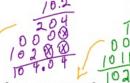
A. 2.23×10^4 pounds   C. 6.5×10^1 pounds

B. 6.46×10^3 pounds   D. 9.38×10^7 pounds

$1.44 \times 10^4 = 14400$
7.94×10^3 $+ 7940$
$22,340 = 2.234 \times 10^4$

13. A

14. Find $\sqrt[3]{512}$.

$8^3 = 512$
$8 \cdot 8 = 64$ $64 \cdot 8 = 512$

14. 8

15. Estimate $\sqrt{104}$ to the nearest tenth.

$\dfrac{7 \times 10^6}{7 \times 10^{-1}} = 7 \times 10^{6-(-1)} = 7 \times 10^7$

15. 10.2

16. The diameter of Mars is about 7×10^6 meters. The diameter of an official regulation basketball is 0.45 meter. About how many times greater is the diameter of Mars than that of a basketball?

$0.45 \approx 0.7$ $0.7 \Rightarrow 7 \times 10^{-1}$

10^6 GREATER $= 7 \times 10^7$
$70,000,000$ 7 TIMES LARGER

16. LARGER

17. Between which two consecutive integers does $\sqrt{41}$ lie?

$\sqrt{36}$ $\sqrt{41}$ $\sqrt{49}$
  6   7

17. 6 AND 7

18. Identify the irrational number(s) from the list of numbers.

$5.\overline{3}, 5\frac{6}{7}, \sqrt{26}, \frac{17}{3}$

IRRATIONAL NUMBERS
π
$\sqrt{\text{NON PERFECT SQUARE}}$

18. $\sqrt{26}$

RATIONAL
$\sqrt{4} = 2$
$\sqrt{9} = 3$

IRRATIONAL
$\sqrt{5}$
$\sqrt{6}$
$\sqrt{7}$
$\sqrt{8}$

95

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