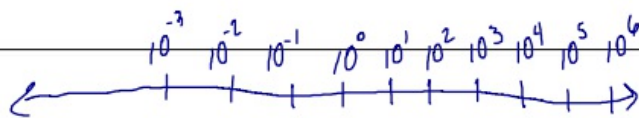


M7A Chapter 4 Practice test 2024

<p>1. Which expression is equivalent to $(-4)(-4)(-4)(-4)$?</p> <p>A. -4^1 B. $(-4)^4$ C. 4^{-2} D. $(-4)^2$</p>	<p>B</p>
<p>2. A golf ball is dropped from the top of a cliff. After 9 seconds the ball hits the ground. The distance in feet the ball traveled can be estimated by $16(9)^2$. About how far did the ball drop?</p> <p>A. 81 feet C. 1296 feet B. 144 feet D. 2304 feet</p> <p style="text-align: center;">$16(81) = 1296$</p>	<p>C</p>
<p>3. Evaluate $a^3 - b^2 + 18$ if $a = 4$ and $b = 8$.</p> <p style="text-align: center;">$4^3 - 8^2 + 18 = 64 - 64 + 18$</p>	<p>18</p>
<p>4. Which expression represents $\frac{1}{9^6}$ using a negative exponent?</p> <p>A. -6^{-9} B. -9^{-6} C. 9^{-6} D. 6^{-9}</p>	<p>C</p>
<p>5. What is the value of $6k^{-4}$ if $k = -1$?</p> <p style="text-align: center;">$6(-1)^{-4} = \frac{6}{1} \left(\frac{1}{(-1)^4} \right) = \frac{6}{1} \left(\frac{1}{1} \right) = 6(1)$</p>	<p>6</p>
<p>6. Write the product of $s^{-8} \cdot s$ using a positive exponent.</p> <p>$\frac{10}{48} = \frac{5}{24}$ $s^{-8} \cdot s = \frac{1}{s^8} \cdot s = \frac{1}{s^7} \cdot \frac{s}{s^8}$</p>	<p>$\frac{1}{s^7}$</p>
<p>7. An astronomer finds that the diameter of asteroid A is roughly 10^{-3} kilometer, whereas the diameter of asteroid B is roughly 10^6 kilometers. About how many times as great is the diameter of asteroid B than asteroid A?</p> <p>A. 10^{-3} B. 10^3 C. 10^9 D. 10^{918}</p> <p style="text-align: right;">$\frac{10^6}{10^{-3}} = 10^{6-(-3)}$</p>	<p>C</p>
<p>8. Which expression is equivalent to b^5?</p> <p>A. $\frac{b^8}{b^3} = b^{8-3} = b^5$ B. $\frac{b^{10}}{b^2}$ C. $\frac{b^{10}}{b^{-5}}$ D. $\frac{5}{b^{-5}}$</p>	<p>A</p>
<p>9. The number of neurons in the neocortex of the human brain is 3×10^{10}. The neocortex of a gorilla contains 7.5×10^8 neurons. Which mammal has more neurons? (Explain how you know based on the math.)</p>	<p>human brain</p>



<p>10. Which number is less than 3.4×10^{-4}?</p> <p>A. 3.4×10^6 C. 3.4×10^2 B. 35,000 3.5×10^4 D. 3.4×10^{-6}</p>	D
<p>11. In 2010, the population of India was about 1.2×10^9. The population of Germany was 81,859,000. About how many times greater was the population of India than the population of Germany in 2010?</p> <p>8×10^7 $\frac{1.2 \times 10^9}{8 \times 10^7} = \frac{12 \times 10^8}{8 \times 10^7} = \frac{12}{8} = 1.5$ $\frac{10^8}{10^7} = 10^1 = 10$ $1.5 \times 10^1 = 15$</p>	ABOUT 15 TIMES GREATER
<p>12. Livia entered China's 2010 automobile sales into her calculator. The number appeared on her screen as 1.8×10^7. Write this number in standard form.</p> <p style="text-align: center;">$18,000,000$</p>	$18,000,000$
<p>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 difference in weight of these two animals expressed using scientific notation?</p> <p style="text-align: center;">7940 14400 $\begin{array}{r} 14400 \\ -7940 \\ \hline 6460 \end{array}$</p>	6.46×10^3 6.5×10^3
<p>14. If $y^3 = 512$, what is the value of y?</p>	8
<p>15. Estimate $\sqrt{126}$ to the nearest tenth.</p> <p style="text-align: center;">$\sqrt{121}$ $\sqrt{126}$ $\sqrt{144}$ \leftarrow \rightarrow 11 11.2 12</p>	11.2
<p>16. Between which two consecutive integers on a number line does $\sqrt{47}$ lie? (consecutive numbers, such as 5, 6, 7, 8, 9, 10)</p>	6 AND 7 $\sqrt{36}$ $\sqrt{49}$
<p>17. Are all square roots irrational numbers? If not, provide a counterexample.</p>	NO $\sqrt{49} = 7$ A RATIONAL NUMBER
<p>18. Emma plans to add trim to the edges of a square table. The area of the table is 625 square inches. How many inches of trim does she need for the table?</p> <p style="text-align: center;">$25^2 = 625$ $\begin{array}{c} 25 \\ \square \\ 25 \end{array}$ $25(4)$</p>	100 INCHES OF TRIM