

**M7A Chapter 4 Practice test**

<p>1. Which expression is equivalent to <math>(-4)(-4)(-4)(-4)</math>?</p> <p>A. <math>-4^1</math>      B. <math>(-4)^4</math>      C. <math>4^{-2}</math>      D. <math>(-4)^2</math></p>	
<p>2. A baseball is dropped from the top of a water tower. After 9 seconds the ball hits the ground. The distance in feet the ball traveled can be estimated by <math>16(9)^2</math>. About how far did the ball drop?</p> <p>A. 81 feet      C. 1296 feet B. 144 feet      D. 2304 feet</p>	
<p>3. Evaluate <math>a^3 - b^2 + 18</math> if <math>a = 4</math> and <math>b = 8</math>.</p> <p>A. -3      B. -21      C. 14      D. 18</p>	
<p>4. Which expression represents <math>\frac{1}{9^6}</math> using a negative exponent?</p> <p>A. <math>-6^{-9}</math>      B. <math>-9^{-6}</math>      C. <math>9^{-6}</math>      D. <math>6^{-9}</math></p>	
<p>5. What is the value of <math>6k^{-4}</math> if <math>k = -1</math>?</p> <p>A. -24      B. 1      C. 6      D. 24</p>	
<p>6. Which expression is equivalent to the product of <math>s^{-8} \cdot s</math>?</p> <p>A. <math>\frac{1}{s^7}</math>      B. <math>\frac{8}{s^8}</math>      C. <math>-s^7</math>      D. <math>-8s^9</math></p>	
<p>7. An astronomer finds that the diameter of asteroid A is roughly <math>10^{-3}</math> kilometer, whereas the diameter of asteroid B is roughly <math>10^6</math> kilometers. About how many times as great is the diameter of asteroid B than asteroid A?</p> <p>F. <math>10^{-3}</math>      G. <math>10^3</math>      H. <math>10^9</math>      J. <math>10^{918}</math></p>	
<p>8. Which expression is equivalent to <math>b^5</math>?</p> <p>A. <math>\frac{b^8}{b^3}</math>      B. <math>\frac{b^{10}}{b^2}</math>      C. <math>\frac{b^{10}}{b^{-5}}</math>      D. <math>\frac{5}{b^{-5}}</math></p>	
<p>9. The number of neurons in the neocortex of the human brain is <math>3 \times 10^{10}</math>. The neocortex of a gorilla contains <math>7.5 \times 10^8</math> neurons. Which mammal has more neurons?</p>	

<p><b>10.</b> Which number is less than <math>3.4 \times 10^{-4}</math>?</p> <p>A. <math>3.4 \times 10^6</math>    C. <math>3.4 \times 10^2</math>  B. 35,000    D. <math>3.4 \times 10^{-6}</math></p>	
<p><b>11.</b> In 2010, the population of India was about <math>1.2 \times 10^9</math>. 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><b>12.</b> The average weight of an African elephant is <math>1.44 \times 10^4</math> pounds and that of a white rhinoceros is <math>7.94 \times 10^3</math> pounds. What is the approximate difference in weight of these two animals?</p> <p>A. <math>2.23 \times 10^4</math> pounds    C. <math>6.5 \times 10^1</math> pounds  B. <math>6.46 \times 10^3</math> pounds    D. <math>9.38 \times 10^7</math> pounds</p>	
<p><b>13.</b> If <math>y^3 = 512</math>, what is the value of <math>y</math>?</p> <p>a. 256     b. 16     c. 8     d. 24</p>	
<p><b>14.</b> Estimate <math>\sqrt{126}</math> to the nearest tenth.</p>	
<p><b>15.</b> Between which two consecutive integers on a number line does <math>\sqrt{47}</math> lie?</p>	
<p><b>16.</b> Are all square roots irrational numbers? If not, provide a counterexample.</p>	
<p><b>17.</b> 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>	