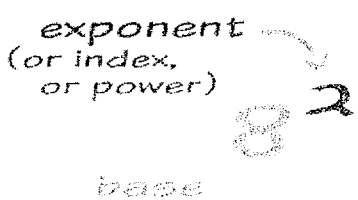


## Powers & Exponents for Daily 9

<u>Concepts / Understandings</u>	<u>Tips to Remember</u>	<u>Practice</u>
<p><b>Outcomes A1 &amp; A2 &amp; A4</b>  <b>Using exponents to describe numbers</b></p> <p>1. Powers with positive bases</p> <p style="text-align: center;">  </p> <p>2. Powers with negative bases  - neg bases with odd numbered exponents are negative  - neg bases with with even numbered exponents are positive</p>	<p><u>Exponential form</u> is a shorter way of writing repeated multiplication using a base and an exponent</p> <ol style="list-style-type: none"> <li><math>5 \times 5 \times 5</math> in exponential form  <math>= 5^3</math></li> <li><math>(-2)^4</math> the exponent applies to the neg. sign and 2 because they are both inside the brackets  <math>= -2 \times -2 \times -2 \times -2 = 16</math></li> <li><math>-2^4</math> the exponent only applies to the # 2 not the neg. sign  <math>= -1(2 \times 2 \times 2 \times 2) = -16</math></li> </ol>	<p><u>Level 1</u>  p. 97  # 4-13</p> <p><u>Level 2</u>  p. 97 &amp; 98  # 16, 21</p>
<p><b>Exponent Laws</b></p> <p>1. <b>Multiplying powers with the same base</b>  When multiplying powers with the <u>same base</u>, add the exponents to write the product as a single power  <math>4^2 \times 4^3</math> becomes <math>4^5</math></p> <p>2. <b>Dividing powers with the same base</b>  When dividing powers with the <u>same base</u>, subtract the exponents to write the quotient as a single power. <math>4^5 \div 4^2</math> becomes <math>4^5 \div 4^2 = 4^3</math></p> <p>3. <b>Raising a Power to an Exponent:</b>  Multiply the exponents to write the expression with a single exponent. <math>(2^3)^2 = 2^6</math>  <b>Raising a Product to an Exponent:</b> Rewrite each factor in the product with the same exponent  <math>[2 \times (-4)]^3 = 2^3 \times (-4)^3</math></p> <p>4. <b>Raising a Quotient (fraction) to an Exponent:</b>  Rewrite each number in the quotient with the same exponent.  <math>(\frac{3}{8})^3 = (\frac{3}{8} \times \frac{3}{8} \times \frac{3}{8})</math></p> <p><b>Anything to the power of <math>0 = 1</math></b></p>	<p><u>Level 1</u>  p. 106  # 5- 13,</p> <p><u>Level 2</u>  p. 106 -107  #14,16,17,21</p>	
<p><b>Order of Operations : BE/DM/AS</b> is the order of operations we must following when solving equations. It stands for:</p> <p><b>B</b> - Brackets <math>(5 + 3)</math> - <i>first</i></p> <p><b>E</b> - Exponents <math>5^3</math> - <i>second</i></p> <p><b>D/M</b> - Division &amp; Multiplication in the order that they appear when we read the equation from left to right. <i>third</i></p> <p><b>A/S</b> - Addition &amp; Subtraction in the order that they appear when we read the equation from left to right. <i>fourth</i></p> <p>**When brackets are next to each other you multiply <math>(4)(6) = 24</math> and <math>(3 + 5)(7 - 2) = (8)(5) = 40</math></p> <p>Expressions with powers can have a numerical coefficient. Find the value of the power and then multiply by the coefficient: <math>-3(2)^4 = -3 \times 2 \times 2 \times 2 \times 2 = -48</math></p>	<p><u>Level 1</u>  p.111  #5- 12  <p><u>p. 118</u>  # 4, 5</p> </p>	