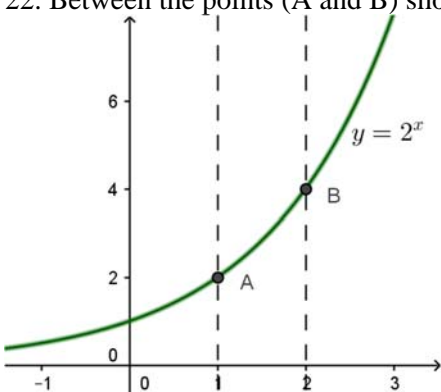


Calculus II: some review problems

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|---|--|
| <p><b>Exponent rules:</b> expand (distribute) and simplify using exponent rules:</p> <ol style="list-style-type: none"> <li><math>n^2(n^3 + 4)</math></li> <li><math>2^2(2^x - 2^3)</math></li> <li><math>2^n(2^m + 3^n)</math></li> <li><math>2^n(2^m + 3)</math></li> <li><math>e^x(e^a - 2)</math></li> </ol>  | <p><b>Exponent rules:</b> find a common factor and factor it out (using exponent rules):</p> <ol style="list-style-type: none"> <li><math>2^6 + 2^4</math></li> <li><math>2^6 + 4</math></li> <li><math>2^6 + 6^6</math></li> <li><math>2^{n+2} + 2^n</math></li> <li><math>2^{x+a} + 2^{x+b}</math></li> <li><math>e^{x+h} - e^x</math></li> <li><math>e^{2x} - e^x</math></li> </ol>                                   |
| <p><b>Inverse functions:</b> Find/tell the inverse function for each of these functions</p> <ol style="list-style-type: none"> <li><math>y = 3x + 7</math></li> <li><math>y = 2x^3 + 1</math></li> <li><math>y = 2 + \sqrt[3]{x+5}</math></li> <li><math>y = \sin x</math> for <math>-\frac{\pi}{2} &lt; x &lt; \frac{\pi}{2}</math></li> <li><math>y = 3^x</math></li> </ol> | <p><b>Inverse functions:</b> Tell why this function doesn't have an inverse function.</p> <ol style="list-style-type: none"> <li><math>y = x^2</math></li> <li><math>y = \sin x</math></li> </ol>  |
| <p><b>Find the slope of each of these lines:</b></p> <ol style="list-style-type: none"> <li>Between (2,3) and (5,10)</li> <li>Between <math>(x, x^2)</math> and (2, 4)</li> <li>Between the points (A and B) shown on the graph:</li> </ol>    | <p><b>Approximate e:</b></p> <ol style="list-style-type: none"> <li>Using the definition             <math display="block">e = \lim_{x \rightarrow \infty} \left( 1 + \frac{1}{x} \right)^x</math>             Find approximate values for e by calculating with             <ol style="list-style-type: none"> <li><math>x = 2</math></li> <li><math>x = 10</math></li> <li><math>x = 100</math></li> </ol> </li> </ol> |