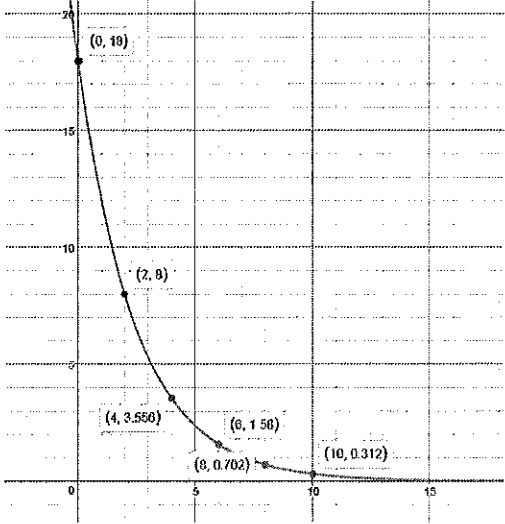


Questions	Notes										
<p>I can write an exponential equation from:</p> <p>1. A table</p> <table border="1" data-bbox="110 285 784 420"> <tr> <td>x</td> <td>0</td> <td>2</td> <td>4</td> <td>6</td> </tr> <tr> <td>y</td> <td>4</td> <td>12</td> <td>36</td> <td>108</td> </tr> </table> <p>2. A graph</p>  <p>3. A description:</p> <ol style="list-style-type: none"> \$10000 is invested in a fund that pays 5% interest every year. A 400 mg dose of ibuprofen is metabolized 55 percent every 2 hours. 	x	0	2	4	6	y	4	12	36	108	<p>Divide y's to find m.</p> <p>1) $y = 4(3)^{x/2}$ ← Table had gaps in the x-values</p> <p>2) $y = 18\left(\frac{8}{18}\right)^{x/2}$ OR $y = 18\left(\frac{4}{9}\right)^{x/2}$ OR $y = 18\left(\frac{2}{3}\right)^x$</p> <p>3a) $y = 10000(1.05)^x$ $y = 400(0.45)^{x/2}$</p>
x	0	2	4	6							
y	4	12	36	108							
<p>I can translate between exponential and logarithmic forms.</p> <ol style="list-style-type: none"> Write $y = 4^x$ in logarithmic form. Write $y = \log_3 x$ in exponential form. 	<p>1) $y^{-1} = \log_4 x$</p> <p>2) $y^{-1} = 3^x$</p>										
<p>I can find the inverses of exponential and logarithmic functions.</p> <ol style="list-style-type: none"> Find the inverse of $f(x) = 2(5^x) - 2$ Find the inverse of $g(x) = 2\log_8(x + 1)$ 	<p>1) $f^{-1} = \log_5\left(\frac{x+2}{2}\right)$</p> <p>2) $g^{-1} = 8^{x/2} - 1$</p>										

I can solve equations using the definition of exponents and logarithms.

1. Solve for x:

a. $3^x + 4 = 31$

b. $2(5^{4x}) - 1 = 249$

2. Solve for x:

a. $\log_{10}(x+2) = 2$

$10^2 = x+2$
 $100 = x+2$

b. $0.25 \log_4(3x) - 5 = 11$

$0.25 \log_4(3x) = 16$

$\log_4(3x) = 64$

$4^{64} = 3x$
 $\frac{4^{64}}{3} = x$

SADMEUP

1) a) $3^x + 4 = 31$

$3^x = 27$

$x = \log_3 27 = 3$

b) $2(5^{4x}) - 1 = 249$

$2(5^{4x}) = 250$

$5^{4x} = 125$

$4x = \log_5 125 = 3$

$x = \frac{3}{4}$

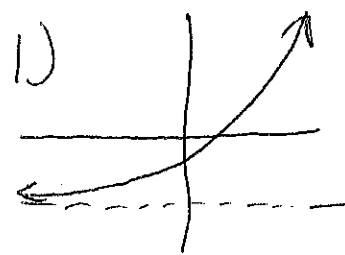
I can graph and find characteristics (intercepts, asymptotes) of exponential and logarithmic functions.

1. Find the y-intercept and horizontal asymptote of

$k(x) = 3(2^x) - 12$

y-int: $3(2^0) - 12 = 3 - 12 = -9$

HA: $y = -12$



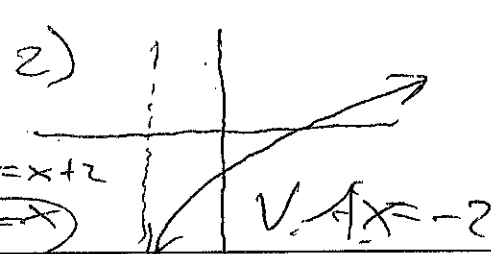
2. Find the x-intercept(s) and vertical asymptote of

$m(x) = 2 \log_4(x+2) - 6$

x-int: $0 = 2 \log_4(x+2) - 6$
 $6 = 2 \log_4(x+2)$

$3 = \log_4(x+2)$

$4^3 = x+2$
 $64 = x+2$
 $62 = x$



I can solve problems using exponential and logarithmic functions.

- You drink a beverage with 120 mg of caffeine. Each hour, the caffeine in your system decreases by about 12%. How long until you have 10mg of caffeine?
- A cup of water reaches boiling point at 100°C and cools to 50°C in 15 minutes. If room temperature is 18.3°C, how long will it take the water to fall below 37°C?

1) $y = 120(.88)^x = 10$

$.88^x = \frac{1}{12}$

$x = \log_{.88} \frac{1}{12} = 19.44$

2) $y = 100(\frac{1}{2})^{\frac{t}{15}} + 18.3 = 37$