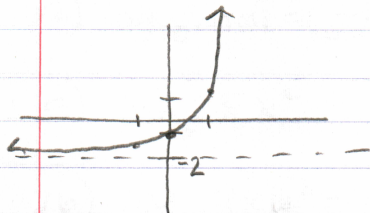


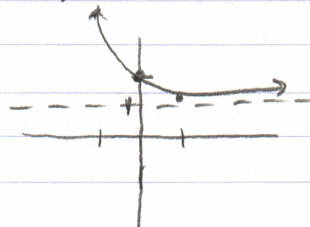
Unit 2 (ch 3) Exponential & Logs

1) $f(x) = 3^x - 2$



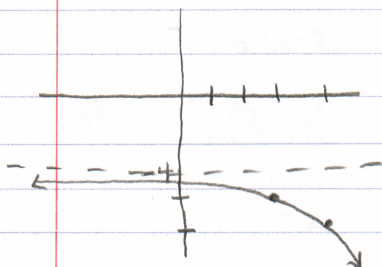
$$\begin{array}{c|c} 0 & -1 \\ 1 & 1 \\ -1 & -1^{2/3} \end{array}$$

2) $f(x) = 1 + 6^{-x} \rightarrow 6^{-x} + 1$



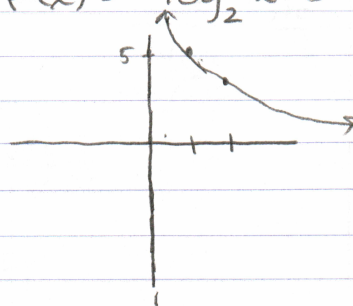
$$\begin{array}{c|c} 0 & 2 \\ 1 & 1\frac{1}{6} \\ -1 & 7 \end{array}$$

3) $f(x) = -1 \cdot 2^{x-3} - 4$



$$\begin{array}{c|c} 3 & -5 \\ 4 & -6 \end{array}$$

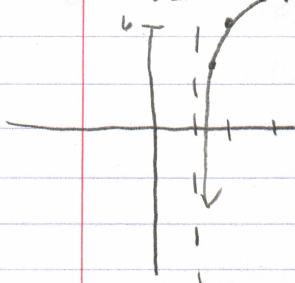
4) $f(x) = -\log_2 x + 5$



VA: $x = 0$

$$\begin{array}{c|c} 1 & 5 \\ 2 & 4 \\ \frac{1}{2} & 6 \end{array}$$

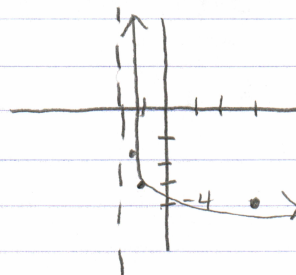
5) $\log_2 (x-1) + 6$



VA: $x = 1$

$$\begin{array}{c|c} 2 & 6 \\ 3 & 7 \\ \frac{1}{2} & 5 \end{array}$$

6) $f(x) = -\log_5 (x+2) - 3$



VA: $x = -2$

$$\begin{array}{c|c} 3 & -4 \\ -1 & -3 \\ -\frac{4}{5} & -2 \end{array}$$

t	1	10	20	30	40	50
7) 8%	\$10833	\$22255	49,530	110232	245325	545982
8) 3%	\$10303	13483	18180	24514	33053	44567

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

$$A = Pe^{rt}$$

$$9) \log_6 216 = (3) \quad 10) \log_7 1 = (0) \quad 11) \log_4 \frac{1}{4} = (-1)$$

$$12) \log_{10} 0.001 = (-3) \quad 13) \log_{\frac{1}{3}} 7 = (\frac{1}{3}) \quad 14) \log 10,000 = (4)$$

$$15) \log_5 5x^2 = \log_5 5 + 2\log x = \boxed{1 + 2\log x}$$

$$16) \log_4 3xy^2 = \boxed{\log_4 3 + \log_4 x + 2\log_4 y}$$

$$17) \log_{10} \frac{5\sqrt{y}}{x^2} = \boxed{\log_{10} 5 + \frac{1}{2}\log_{10} y - 2\log_{10} x}$$

$$18) 5\log(x-2) - \log(x+2) - \log x = \log \frac{(x-2)^5}{(x+2)x} = \boxed{\log \frac{(x-2)^5}{x(x+2)}}$$

$$19) \frac{1}{2} \ln(2x-1) - 2\ln(x+1) = \boxed{\ln \frac{\sqrt{2x-1}}{(x+1)^2}}$$

$$20) \log_6 y - 2\log_6 z = \boxed{\log_6 \frac{y}{z^2}}$$

$$21) p = 500 - .5e^{.004x}$$

$$\begin{aligned} a) \quad 500 - .5e^{.004x} &= 450 \\ -.5e^{.004x} &= -50 \\ \ln e^{.004x} &= \ln 100 \\ .004x &= 4.605 \\ \boxed{x &= 1151.29} \end{aligned}$$

$$\begin{aligned} b) \quad 500 - .5e^{.004x} &= 400 \\ -.5e^{.004x} &= -100 \\ \ln e^{.004x} &= \ln 200 \\ .004x &= 5.298 \\ \boxed{x &= 1324.58} \end{aligned}$$

$$\begin{aligned} 22) \quad P &= 361e^{kt} \\ a) \quad 215,000 &= 361e^{-20K} \\ \ln 595.57 &= \ln e^{-20K} \\ 4.39 &= -20K \\ K &= -.32 \end{aligned}$$

$$\begin{aligned} b) \quad &= 361e^{20(-.32)} \\ &= \end{aligned}$$