3.1b p. 189–191 (2, 33, 35, 43, 49, 65, 71, 79, 81)

2.) natural exponential, natural

33.) $f(x) = e^x$ if $x = 9.2$ then $e^{9.2} \approx 9897.129$

35.) $g(x) = 50e^{4x}$ if $x = 0.02$ then $50e^{(4(.02))} = 50e^{0.08}$

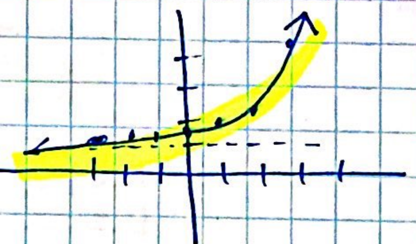
≈ 54.164

43.) $y = 3^{x-2} + 1$

x	-3	-2	-1	0	1	2	3
y	$\frac{244}{243}$	$\frac{82}{81}$	$\frac{28}{27}$	$\frac{10}{9}$	$\frac{4}{3}$	2	4
	$3^{-5}+1$	$3^{-4}+1$	$3^{-3}+1$	$3^{-2}+1$	$\frac{1}{3}+1$	$1+1$	
	$\frac{1}{243}+\frac{243}{243}$	$\frac{1}{81}+\frac{81}{81}$	$\frac{1}{27}+1$	$\frac{1}{9}+\frac{9}{9}$			

or

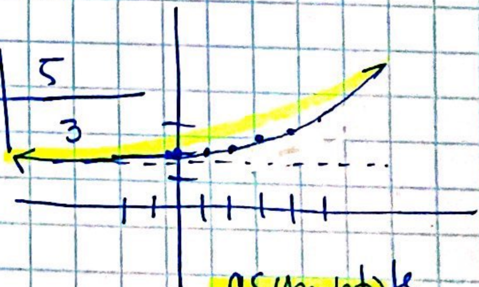
x	-3	-2	-1	0	1	2	3
y	1.004	1.012	1.037	1.11	1.3	2	4



asymptote $y = 1$

49.) $f(x) = 2 + e^{x-5}$

x	-3	-2	-1	0	1	2	3	4	5
f(x)	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	3



asymptote $y = 2$

$r = 2\%$ $t = 10$ \$2500

65.)

n	1	2	4	12	365	Continuous
A	\$3047.49	\$3050.48	\$3051.99	\$3053.00	\$3053.49	\$3053.51

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

$2500\left(1 + \frac{0.02}{1}\right)^{10(1)}$

$2500\left(1 + \frac{0.02}{365}\right)^{365(10)}$

$A = Pe^{rt}$

$2500e^{.02(10)}$

71. $A = \$12000$
$r = 3.5\%$

$$A = Pe^{rt}$$

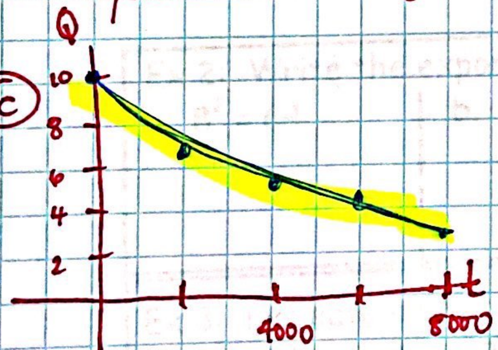
t	1	10	20	30	40	50
A	\$12,427.44	\$17,028.81	\$24,165.03	\$34,291.81	\$48,662.40	\$69,055.23

$\uparrow$ $12000e^{.035(1)}$ $\quad$ $\uparrow$ $12000^{.035(10)}$ $\quad$ $\uparrow$ $12000e^{.035(20)}$ $\quad$ $\uparrow$ $12000e^{.035(30)}$ $\quad$ $\uparrow$ $12000e^{.035(40)}$ $\quad$ $\uparrow$ $12000\,e^{.035(50)}$

79. $Q = 10\left(\frac{1}{2}\right)^{\frac{t}{5700}}$

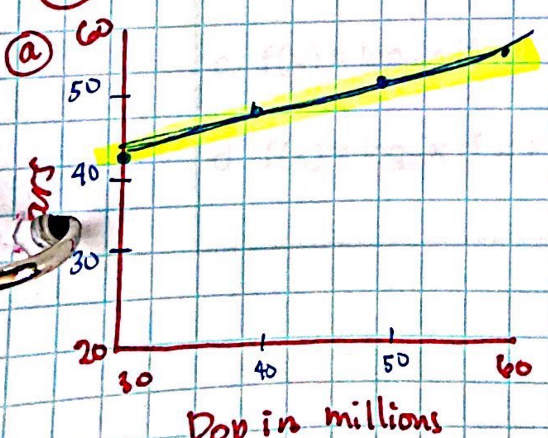
a) $t=0$ $\qquad 10\left(\frac{1}{2}\right)^0 = 10(1) = \boxed{10g}$

b) After 2000 years $\qquad 10\left(\frac{1}{2}\right)^{\frac{2000}{5700}} \approx \boxed{7.84g}$

c) 

$$y = 10\left(\frac{1}{2}\right)^{\frac{x}{5700}}$$

81. $P = 36.308\,e^{0.0065t}$

a) 

b)

t	P
20	41.349
30	44.126
40	47.089
50	50.251
60	53.626

c)

t	P
51	50.579
52	50.909
53	51.241
54	51.575

2053 Pop exceeds 51 million