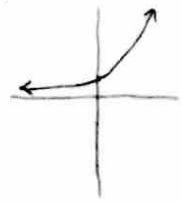


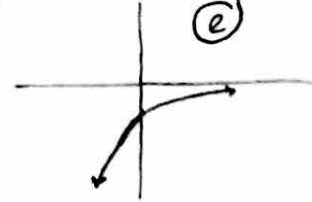
1) $y = 2^x$ (a)



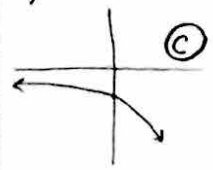
2) $y = 3^{-x}$ (d)



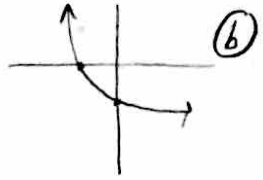
3) $y = -3^{-x}$ (e)



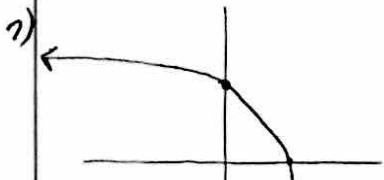
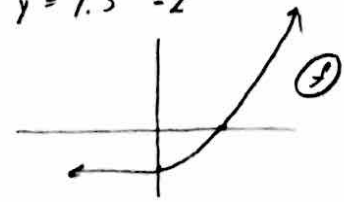
4) $y = -0.5^{-x}$ (c)



5) $y = 2^{-x} - 2$ (b)



6) $y = 1.5^x - 2$ (f)



Domain: \mathbb{R}
Range: $(-\infty, 3)$

Intercepts

$$y = -2^0 + 3$$

$$= -1 + 3 = 2$$

$$0 = -2^x + 3$$

$$3 = 2^x$$

$$\log_2 3 = \log_2 2^x$$

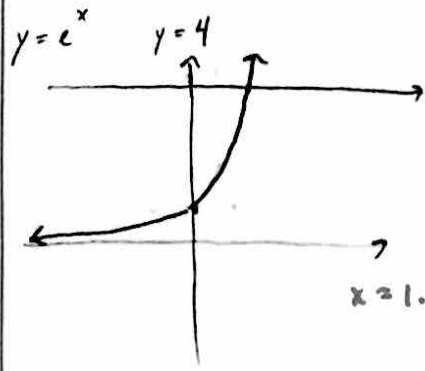
11) 9^{2x} ; base 3

$$\left(\frac{3^2}{3}\right)^{2x} = 3^{1x}$$

13) $\left(\frac{1}{8}\right)^{2x}$; base 2

$$\left(\frac{1}{2^3}\right)^{2x} = (2^{-3})^{2x} = 2^{-6x}$$

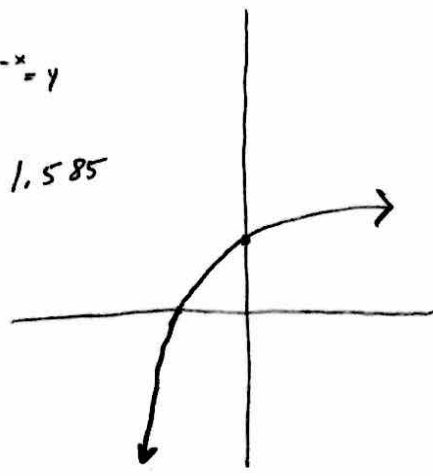
16) $2^x = 4$



$x = 1.386$

18) $y = 0$
 $3 - 2^{-x} = 4$

$x = -1.585$



National Brand

23)

$$P = 500,000$$

$$r = 1.0375$$

$$P = 1,000,000$$

$$1,000,000 = 500,000 (1.0375^x)$$

$$2 = 1.0375^x$$

$$y = 2 \quad y = 1.0375^x$$

$$\sim 18.83 \text{ yrs}$$

27)

$$y = 1 (1.0625)^x$$

$$y = 2 \quad y = 1.0625^x$$

$$\sim 11.433 \text{ yrs}$$

31)

$$3 = \left(1 + \frac{0.0575}{365}\right)^{365t}$$

$$\sim 19.108 \text{ yrs to triple}$$

25) half life = 14 years
6.6 grams initially

$$y = 6.6 \left(\frac{1}{2}\right)^{\frac{t}{14}}$$

$$y = 1 \quad y = 6.6 \left(\frac{1}{2}\right)^{\frac{t}{14}}$$

$$\sim 38.115 \text{ days}$$

29)

$$P = e^{rt}$$

$$= e^{0.0625t}$$

$$y = 2 \quad y = e^{0.0625t}$$

$$\sim 11.09 \text{ yrs}$$

33)

$$1 \left(\frac{1}{2}\right)^{48} \approx 2.8147 \times 10^{-14}$$