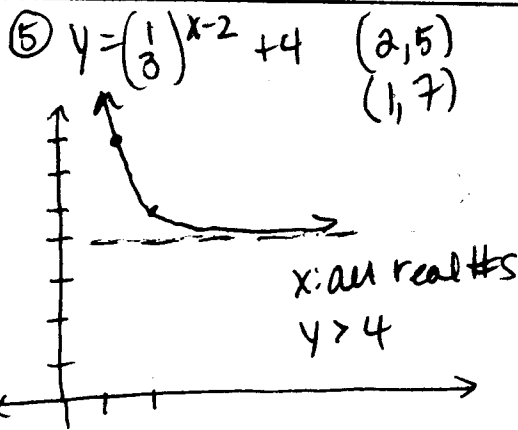


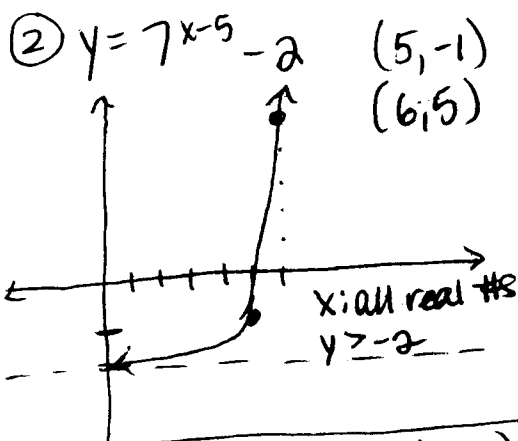
①  $y = \sqrt{5} \cdot 2^{3x}$   $y = ab^x$  form?  
 $y = \sqrt{5} \cdot \sqrt{2^{3x}}$   
 $y = \sqrt{5} \cdot 2^{\frac{1}{2} \cdot 3x}$   
 $y = \sqrt{5} \cdot 2^{\frac{3}{2}x}$   
 $y = \sqrt{5} (\sqrt{2^3})^x$   
 $y = \sqrt{5} (\sqrt{8})^x$   
 $y = \sqrt{5} (2\sqrt{2})^x$



⑧  $\log_8 2 = \frac{1}{3}$   
 $8^{\frac{1}{3}} = 2$

⑨  $\log_{16} 8 = x$   
 $16^x = 8$   
 $2^{4x} = 2^3$   
 $4x = 3$

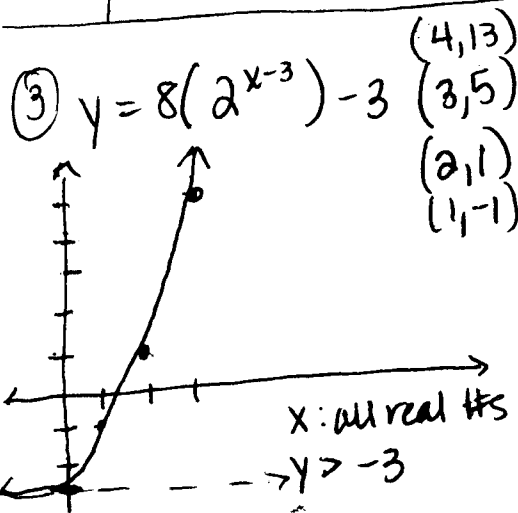
3



⑥  $f(2) = ?$   $f(x) = ab^x$   
 $f(0) = \frac{8}{3}$  and  $f(3) = \frac{1}{81}$   
 when  $x=0$ ,  $f(x) = \frac{8}{3}$  when  $x=3$ ,  $f(x) = \frac{1}{81}$   
 $\frac{8}{3} = ab^0$   $\frac{1}{81} = \frac{8}{3}(b)^3$   
 $\frac{8}{3} = a(1)$   $\frac{3}{8} \cdot \frac{1}{81} = b^3$   
 $\frac{8}{3} = a$   $\frac{1}{8} \cdot \frac{1}{27} = b^3$   
 $b = \sqrt[3]{\frac{1}{8} \cdot \frac{1}{27}}$   
 $b = \frac{1}{6}$

⑩  $\log \frac{1}{1000} = x$   
 $10^x = \frac{1}{1000}$   
 $10^x = 10^{-3}$

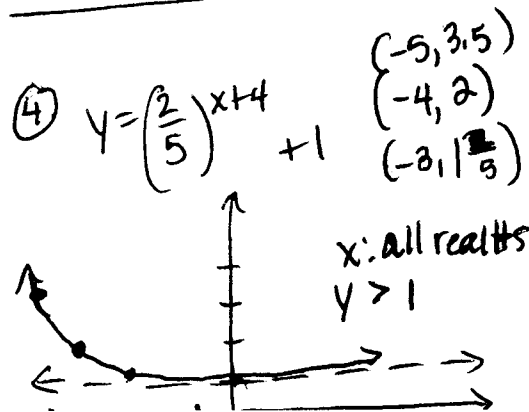
-3



$\therefore f(x) = \frac{8}{3} \cdot (\frac{1}{6})^x$   
 $f(2) = \frac{8}{3} \cdot (\frac{1}{6})^2$   
 $f(2) = \frac{8}{3} \cdot \frac{1}{36}$   
 $f(2) = \frac{2}{3} \cdot \frac{1}{9}$   
 $f(2) = \frac{2}{27}$

⑪  $\log_9 X = \frac{3}{2}$   
 $9^{\frac{3}{2}} = X$   
 $X = (\sqrt{9})^3$   
 $X = 3^3$

27



⑦  $A = P(1 + \frac{r}{n})^{nt}$   
 $A = 8000(1 + \frac{0.065}{4})^{4(2)}$   
 $A = 8000(1.06625)^8$   $A = Pe^{rt}$   
 $A = 9101.1$   $9110.63$

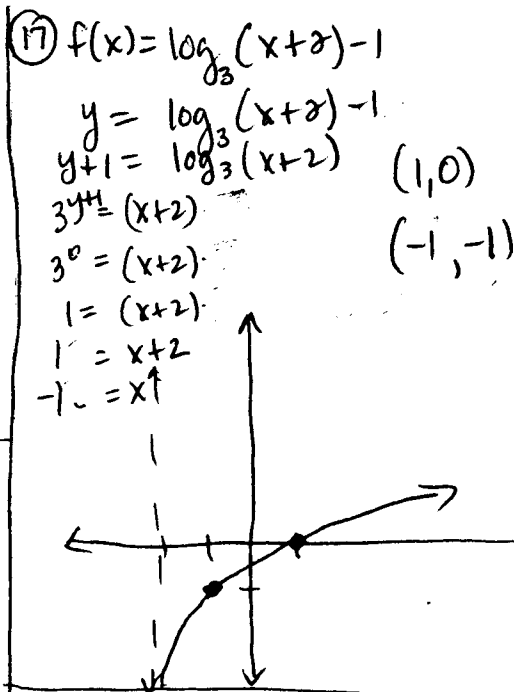
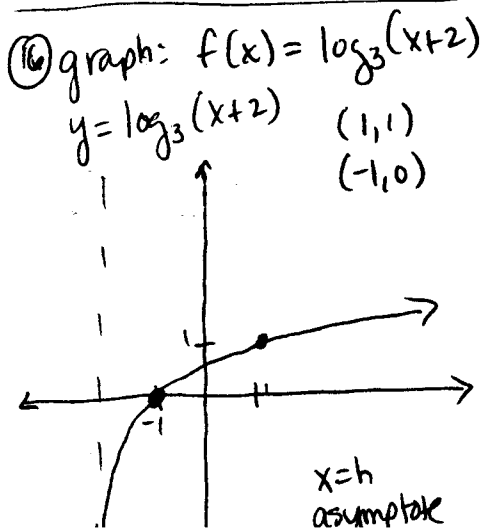
⑫  $\log_x \frac{1}{4} = -\frac{2}{3}$   
 $x^{-\frac{2}{3}} = \frac{1}{4}$   
 $x = (\frac{1}{4})^{-\frac{3}{2}}$   
 $x = \frac{1^{-\frac{3}{2}}}{4^{-\frac{3}{2}}} = \frac{(\sqrt{4})^3}{(\sqrt{1})^3} = 2^3$

8

⑬  $f^{-1}(x) = ?$   
 $f(x) = \log_4 x$   
 $y = \log_4 x$   
 $4^y = x$   
 $y = 4^x$   
 $f^{-1}(x) = 4^x$

⑭  $f(x) = \log(3x+2)$   
 $y = \log(3x+2)$   
 $10^y = 3x+2$   
 $10^x = 3y+2$   
 $\frac{10^x - 2}{3} = y$   
 $f^{-1}(x) = \frac{10^x - 2}{3}$

⑮  $f(x) = \ln(x-2) + 1$   $f^{-1}(x) = ?$   
 $y = \ln(x-2) + 1$   
 $x-1 = \ln(y-2)$   
 $e^{x-1} = y-2$   
 $e^{x-1} + 2 = y$   
 $f^{-1}(x) = e^{x-1} + 2$



⑱  $\log_4 \frac{2xy}{z}$   
 $= \log_4 2 + \log_4 x + \log_4 y - \log_4 z$   
 $4^{1/2} = 2$   
 $2^{2x} = 2$   
 $x = \frac{1}{2}$   
 $\frac{1}{2} + \log_4 x + \log_4 y - \log_4 z$

⑲  $\log \frac{\sqrt{x}}{y} = \log x^{1/2} - \log y$   
 $= \frac{1}{2} \log x - \log y$

⑳  $\log(3xyz^2)^3$   
 $3(\log 3 + \log x + \log y + \log z^2)$   
 $3(\log 3 + \log x + \log y + 2 \log z)$

㉑  $\ln \frac{x}{yz}$   
 $= \ln x - (\ln y + \ln z)$   
 $= \ln x - \ln y - \ln z$

㉒  $\log 3 - \log 4 - \log \frac{3}{4}$   
 $\log \frac{3}{4}$   
 $\log \frac{3}{28}$

㉓  $4[\log_2(x-4) + 5 \log_2(x+1)]$   
 $= \log_2 \left[ \frac{(x-4)(x+1)^5}{(x-1)^3} \right]^4$

㉔  $y = \log_2(x-1) + 3$   
 $y = \frac{\log(x-1)}{\log 2} + 3$   
 $y = \frac{\ln(x-1)}{\ln 2} + 3$

㉕  $\log_b 3 = p$   $\log_b 5 = q$   
 $\log_b 25 = ?$   
 $\log_b 5^2 = ?$   
 $2 \log_b 5 = ?$  2q

㉖  $\log_b \sqrt{3} = ?$   
 $\log 3^{1/2} = ?$   
 $\frac{1}{2} \log 3 = ?$

$\frac{p}{2}$

㉗  $2^{3x+1} = 4$   
 $2^{3x+1} = 2^2$   
 $3x+1 = 2$   
 $3x = 1$   
 $x = \frac{1}{3}$

$$\textcircled{28} e^{x^2+1} = e^{x+3}$$

$$x^2+1 = x+3$$

$$x^2 - x - 2 = 0$$

$$(x-2)(x+1) = 0$$

$$x = 2, -1$$

$$\begin{array}{r|l} -2 & -1 \\ \hline -2 & 1 \end{array}$$

$$-1, 2$$

$$\textcircled{31} \log(x^2-1) = \log(x+5)$$

$$x^2-1 = x+5$$

$$x^2 - x - 6 = 0$$

$$(x-3)(x+2) = 0$$

$$x = 3, -2$$

$$\begin{array}{r|l} -6 & -1 \\ \hline -3 & 2 \end{array}$$

$$-2, 3$$

$$\textcircled{29} \log_2 x + \log_2(x-2) - \log_2(x-3) = 3$$

$$\log_2 \frac{x(x-2)}{x-3} = 3$$

$$2^3 = \frac{x(x-2)}{x-3}$$

$$8 = \frac{x(x-2)}{x-3}$$

$$8x - 24 = x(x-2)$$

$$8x - 24 = x^2 - 2x$$

$$0 = x^2 - 10x + 24$$

$$\begin{array}{r|l} 24 & -10 \\ \hline -6 & 4 \end{array}$$

$$(x-6)(x-4) = 0$$

$$4, 6$$

$$\textcircled{32} \frac{5^x}{25^x} = 125$$

$$\frac{5^x}{5^{2x}} = 5^3$$

$$\frac{5^x}{5^{2x}} = 5^3$$

$$x^2 - 2x = 3$$

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

$$(x-3)(x+1) = 0$$

$$x = 3, -1$$

$$\begin{array}{r|l} -3 & -1 \\ \hline -3 & 1 \end{array}$$

$$3, -1$$

$$\textcircled{33} \log_x 2 + \log_x 3 = 5$$

$$\log_x (2 \cdot 3) = 5$$

$$\log_x (6) = 5$$

$$x^5 = 6$$

$$\sqrt[5]{6}$$

$$\textcircled{34} \log(x+12) + \log(x-3) = 2$$

$$\log(x+12)(x-3) = 2$$

$$10^2 = (x+12)(x-3)$$

$$100 = x^2 + 9x - 36$$

$$0 = x^2 + 9x - 136$$

$$0 = (x+17)(x-8)$$

$$x = -17, 8$$

$$\begin{array}{r|l} -136 & 9 \\ \hline -17 & 8 \end{array}$$

$$8$$

$$\textcircled{30} \ln(6x+5) = 7$$

$$e^7 = 6x+5$$

$$6x = e^7 - 5$$

$$x = \frac{e^7 - 5}{6}$$

$$x \approx 181.939$$

$$181.939$$