

⑪ $y = 5^x - 1$

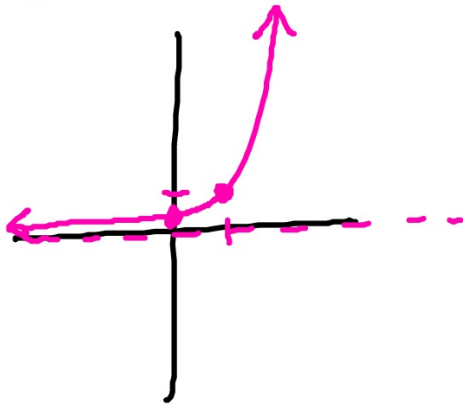
R1

HA: $y = 0$

y-int: $(0, -1/5)$

$y = 5^{0-1}$

$y = 5^{-1}$

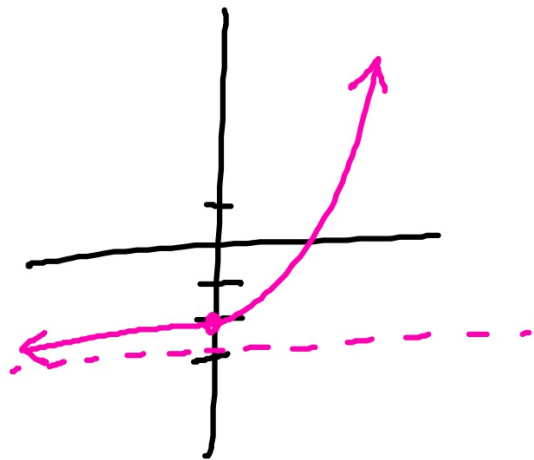


⑫ $y = 4^x - 3$

D3

HA: $y = -3$

y-int: $(0, -2)$



$$(23) \quad 3^{x+2} = \frac{1}{9}$$

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

$$3^{x+2} = 3^{-2}$$

$$x+2 = -2$$

$$x = -4$$

$$(39) \quad A = Pe^{rt}$$

$$A = 50,000 e^{.0975 \cdot 35}$$

$$A = 1,069,047.14$$

$$\left. \begin{array}{l} A = Pe \\ 100,000 = 50,000 \\ 2 = e^{.0975t} \\ \ln 2 = .0975t \\ t = 7 \end{array} \right\}$$

$$(49) \quad \log_4(x+7) = \log_4 14$$

$$x+7 = 14$$

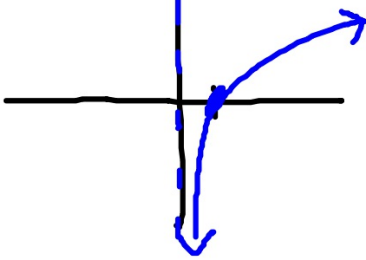
$$x = 7$$

(53) $y = \log_7(x)$

VA: $x=0$

x-int: $(1, 0)$

D: $(0, \infty)$



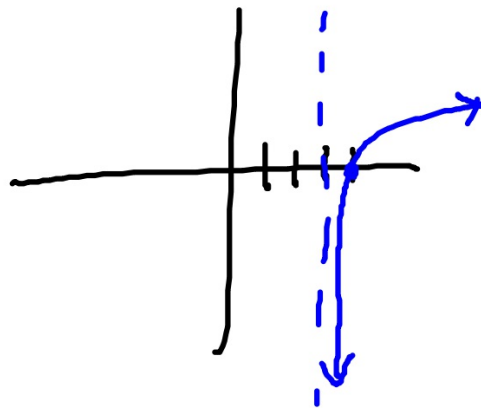
(66) $y = \ln(x-3)$

R3

VA: $x=3$

x-int: $(4, 0)$

D: $(3, \infty)$



$$(79) \log_5(5) + \log_5(x^2)$$

$$1 + 2 \cdot \log_5(x)$$

$$(80) \log 7 + \log x^4$$

$$\log 7 + 4 \cdot \log x$$

$$(81) \log_3 6 - \log_3 x^{1/3}$$

$$\log_3 6 - \frac{1}{3} \cdot \log_3 x$$

$$(82) \log_7 x^{1/2} - \log_7 4$$

$$\frac{1}{2} \cdot \log_7 x - \log_7 4$$

$$(83) \ln x^2 + \ln y^2 + \ln z$$

$$2 \cdot \ln x + 2 \cdot \ln y + \ln z$$

$$(84) \ln 3 + \ln x + \ln x^2$$

$$\ln 3 + \ln x + 2 \cdot \ln x$$

$$(85) \ln(x+3) - \ln x - \ln y$$

$$\textcircled{87} \quad \log_2 5 + \log_2 x$$

$$\log_2 5x$$

$$\textcircled{90} \quad 3 \cdot \ln x + 2 \cdot \ln(x+1)$$

$$\ln x^3 \cdot (x+1)^2$$

$$\textcircled{88} \quad \log_6 y - 2 \log_6 z$$

$$\log_6 \frac{y}{z^2}$$

$$\textcircled{89} \quad \ln x - \frac{1}{4} \cdot \ln y$$

$$\ln \frac{x}{\sqrt[4]{y}}$$

$$(97) \log_8 512 = 3$$

$$(98) \log_6 \frac{1}{216} = -3$$

$$(99) \ln 3 = 1.099$$

$$(100) \ln 6 = 1.792$$

$$(101) 4^2 = 16$$

$$(102) 6^{-1} = \frac{1}{6}$$

$$(103) e^4 = 54.598$$

$$(104) e^{-3} = .050$$

$$(105) \ln 12 = 2.485$$

$$(106) \ln 25 = 3x$$
$$x = 1.073$$

$$(107) 4x = x^2 + 3$$
$$0 = x^2 - 4x + 3$$
$$0 = (x-3)(x-1)$$
$$x = 3, 1$$

$$(108) 14e^{3x+2} = 560$$

$$e^{3x+2} = 40$$

$$\ln 40 = 3x+2$$

$$x = .563$$

$$(109) 2^x + 13 = 35$$

$$2^x = 22$$

$$\log_2 22 = x$$

$$x = 4.459$$

$$\textcircled{\text{Ii}} \quad 6^x - 28 = -8$$

$$6^x = 20$$

$$\log_6 20 = x$$

$$x = 1.672$$

$$\textcircled{\text{Ii2}} \quad 2(12^x) = 190$$

$$12^x = 95$$

$$\log_{12} 95 = x$$

$$x = 1.833$$

$$\textcircled{\text{Iii}} \quad -4(5^x) = -68$$

$$5^x = 17$$

$$\log_5 (17) = x$$

$$x = 1.760$$

$$(135) A = Pe^{rt}$$

$$22,650 = 7550 e^{.0725t}$$

$$3 = e^{.0725t}$$

$$\ln 3 = .0725t$$

$$t = 15.153$$

145

$$4,500 = 3499 e^{.0135t}$$

$$\frac{4500}{3499} = e^{.0135t}$$

$$\ln(\quad) = .0135t$$

$$t = 18.637$$

2008

(147)

$$A = Pe^{rt}$$

$$20,000 = 10,000 e^{5r}$$

$$2 = e^{5r}$$

$$\ln 2 = 5r$$

$$r = .13863$$

$$r = 13.863\%$$

$$A = Pe^{rt}$$

$$A = 10,000 e^{.13863 \cdot 1}$$

$$A \approx 11,486.99$$