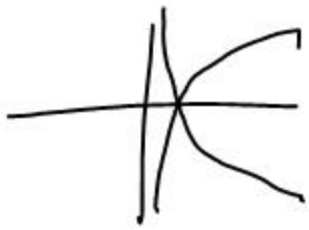
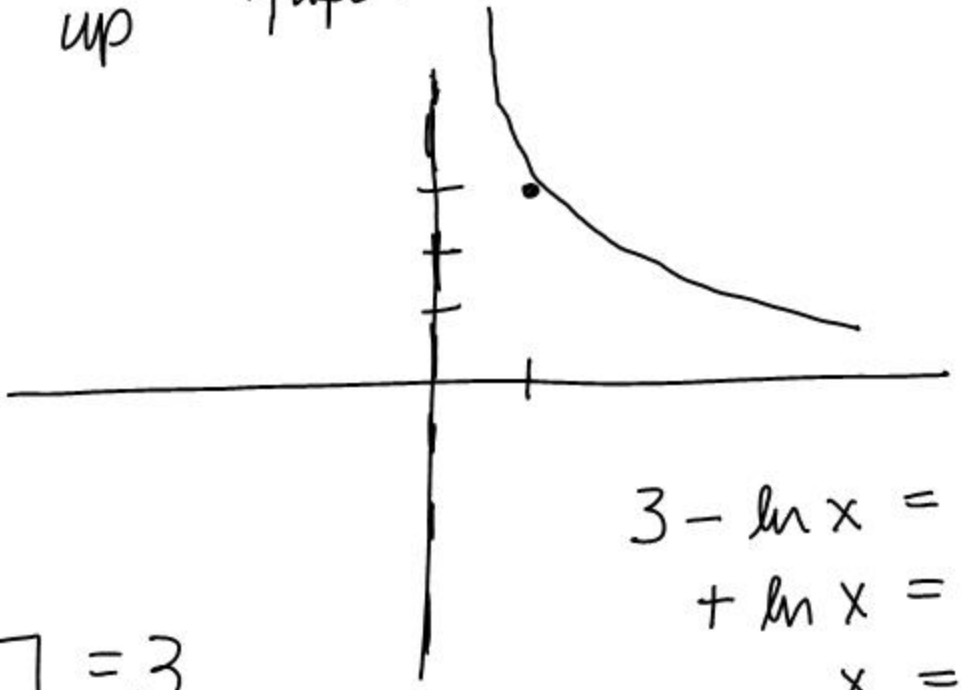
#3. $y = 3 - 1\ln x$

up ↑ ↑ flips over x-axis





$3 - \ln x = 0$

$+\ln x = +3$

$x = e^3 \approx 20.8$

$\log_e \square = 3$

$e^3 = \square$

3.3.2

Log form ⟶ Exponential form

(#2.) $6 = \log_2 64 \longrightarrow 2^6 = 64$

↑ logarithm ↑ base ↑ argument

Exponential form $\longrightarrow$ log form

#14 $\sqrt[3]{64} = 4 \longrightarrow \log_{64} 4 = \frac{1}{3}$

$64^{\frac{1}{3}} = 4$

Evaluating Logarithms

#22. $\log_7 49 = \boxed{2}$ $\quad 7^{\square} = 49$

#26. $\log_6 \frac{1}{6} = \boxed{-1}$ $\quad 6^{\square} = \frac{1}{6}$

#30. $\log_6 \sqrt{6} = \boxed{\frac{1}{2}}$ $\quad 6^{\square} = 6^{\frac{1}{2}}$

$= \log_6 6^{\frac{1}{2}}$

#34. $\log_{81} 9 = \boxed{\frac{1}{2}}$ $\quad 81^{\square} = 9$

#38. $\log_6 1 = \boxed{0}$ $\quad 6^{\square} = 1$

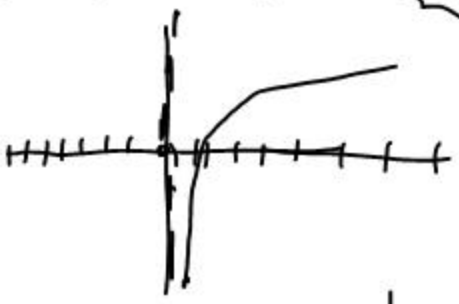
#42. $7^{\log_7 23} = \boxed{23}$

$\log_7 23 = \square$

$7^{\square} = 23$

$7^{\log_7 23} = 23$

#75 Find the domain of $f(x) = \log_5 (x+4)$



you can only take the log of positive numbers

$x + 4 > 0$

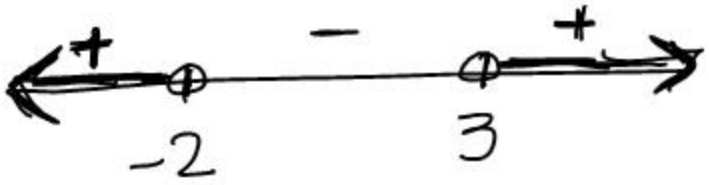
$x > -4$

Domain: $(-4, \infty)$

Ex. Find the domain of $y = \ln(x^2 - x - 6)$

$$x^2 - x - 6 > 0$$

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



Domain: $(-\infty, -2) \cup (3, \infty)$

$\ln x = \log_e x$

$\log x = \log_{10} x$

#82. $\log 1000 = 3$

#86. $10^{\log 53} = 53$

#90. $\ln e^7 = \boxed{7}$

#94. $e^{\ln 300} = 300$

#98. $e^{\ln 7x^2} = 7x^2$

$e^{\square} = e^7$

base, log, argument

HW Graphing Handout #10 (finding domain)

p. 410 #23 – 40 (3rd + 4th columns)

#83 – 100 (3rd + 4th columns)