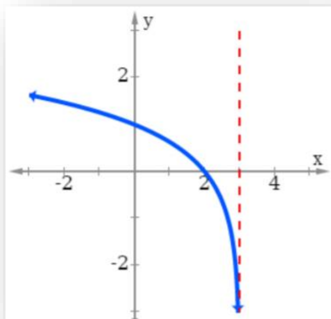
4.3: (Logarithmic Functions)

If $f(x) = \log_{1/3}(1-x)$, then $f^{-1}(-1)$ is equal to A) -2 B) 2 C) 0 D) $\frac{2}{3}$ E) $-\frac{2}{3}$	Logarithmic Functions.
The interval on which the graph of $f(x) = \left(\frac{1}{2}\right)^{x-2} - 3$ is below the x-axis is A) $(2-\log_2 3, \infty)$ B) $(-\infty, 2-\log_2 3)$ C) $(-2+\log_2 3, \infty)$ D) $(0, \infty)$ E) $(-\infty, 3-\log_3 2)$	Logarithmic Functions.
If $x = e^{(-\ln 3 + 2\ln 5)}$ and $y = \ln \sqrt[4]{e^5}$, then $x + y =$ (a) $\frac{115}{12}$ (b) $\frac{101}{12}$ (c) $\frac{30}{7}$ (d) $\frac{100}{11}$ (e) $\frac{100}{7}$	Logarithmic Functions.

The graph of the function $f(x) = \lvert -e^{-x} + 4 \rvert$, is decreasing on the interval A) $(-\infty, -2\ln 2)$ B) $(2\ln 2, \infty)$ C) $(-\infty, \infty)$ D) $(-2\ln 2, \infty)$ E) $(-\infty, 2\ln 2)$	Logarithmic Functions.
The graph of $f(x) = 3 - 2^{-x}$ is above the x-axis on the interval A) $(-\log_2 3, \infty)$ B) $(-1, \infty)$ C) $(-\infty, 3)$ D) $\left(-\infty, \log_2 \frac{1}{3}\right)$ E) $(-\log_3 2, \infty)$	Logarithmic Functions.
The graph of the function $y = -\ln \lvert x - 2 \rvert$ is above the x - axis on A) $(3, \infty)$ B) $(-\infty, 1)$ C) $(1,3)$ D) $(1,2) \cup (2,3)$ E) $(-\infty, 1) \cup (3, \infty)$	Logarithmic Functions.

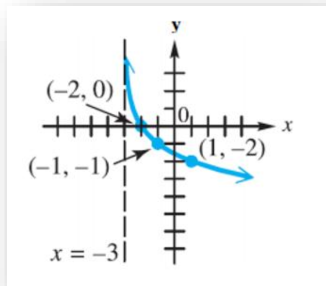
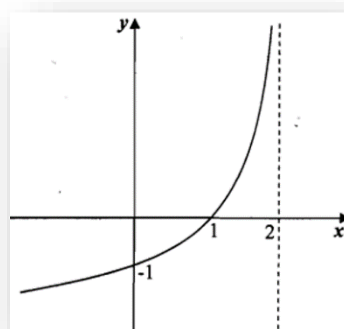
The graph of the function $f(x) = \left\|\log_{\frac{1}{2}}(-x+2)\right\|$ is increasing on the interval A) (1,2) B) $(1, \infty)$ C) $(-1, -2)$ D) $(-\infty, 2)$ E) $(-\infty, 1)$	Logarithmic Functions.
If the adjacent figure represents the graph of the function $f(x) = \log_b(a - x)$, then $a + b =$ A) 6 B) 4 C) 3 D) 0 E) 9 	Logarithmic Functions.
The graph of the function $y = -\log\|2 - x\|$ is decreasing on the interval A) $(2, \infty)$ B) $(-\infty, 2)$ C) $(-\infty, \infty)$ D) $(0, \infty)$ E) $(-\infty, 0)$	Logarithmic Functions.

The graph of the function $f(x) = \|\log_2(x-2)\|$ is decreasing on the interval A) $(0,2)$ B) $(-\infty, 2)$ C) $(2,3)$ D) $(3, \infty)$ E) $(-\infty, \infty)$	Logarithmic Functions.
The domain of the function $f(x) = \log\left(\frac{x+2}{x-1}\right)^2$ A) $(-\infty, -2) \cup (-2,1) \cup (1, \infty)$ B) $(-\infty, 1) \cup (1, \infty)$ C) $(-\infty, -2) \cup (1, \infty)$ D) $(-\infty, \infty)$ E) $(-2,1)$	Logarithmic Functions.
The domain of the function $y = 1 + \log_2\left(\frac{2-x}{x+1}\right)$ is A) $(-1,2)$ B) $(-2,2)$ C) $(-\infty, -2) \cup (1, \infty)$ D) $(-\infty, 1) \cup (2, \infty)$ E) $(-\infty, -1) \cup (2, \infty)$	Logarithmic Functions.
The domain of the function $f(x) = \ln\left(\frac{(1-x)^2}{4x-x^2}\right)$ A) $(0,1) \cup (1,4)$ B) $(0,4)$ C) $(1,4)$ D) $(0,1)$ E) $(-\infty, 0) \cup (1,4) \cup (4, \infty)$	Logarithmic Functions.

If $(p, 0)$ is the x-intercept and $(0, q)$ is the y-intercept of the graph of $f(x) = \log_{1/3}(3 - x)$, then $p - q =$ A) 3 B) -1 C) 1 D) 2 E) $1/3$	Logarithmic Functions.
If the domain of $f(x) = \frac{\ln(x^2-x-2)}{\ln(x-2)}$ is $(a, b) \cup (b, \infty)$, then $a + b =$ A) 6 B) 7 C) 4 D) -1 E) 5	Logarithmic Functions.
If the inverse of $f(x) = 1 + e^{2x-3}$ is $f^{-1}(x) = a + b\ln(x + c)$, then $a + b + c =$ A) 4 B) -2 C) 2 D) 3 E) 1	Logarithmic Functions.

If $(a, 0)$ and $(0, b)$ are points on the graph of the function $f(x) = \log_3(x+1) - 1$, then $a + b =$ A) -2 B) 3 C) 1 D) -1 E) 2	Logarithmic Functions.
The domain of the function $y = 3 + \log_2\left(\frac{4-2x}{x-1}\right)$, is A) (1,2) B) $(-\infty, 1) \cup (2, \infty)$ C) $(-\infty, 1) \cup (1, \infty)$ D) $(-\infty, 1) \cup (4, \infty)$ E) (1,4)	Logarithmic Functions.
The domain, in interval notation, of the function $f(x) = \ln(x - x^2)$ is A) $(1, \infty)$ B) (0,1) C) $(-\infty, \infty)$ D) $(-\infty, 1)$ E) $(-\infty, 0)$	Logarithmic Functions.
The graph of $f(x) = -\ln\|x+2\|$ lies above the x-axis on the interval A) $(-3, -2) \cup (-2, -1)$ B) $(-\infty, -3) \cup (-1, \infty)$ C) $(-2, -1) \cup (-1, \infty)$ D) $(-2,0)$ E) $(-3,0)$	Logarithmic Functions.

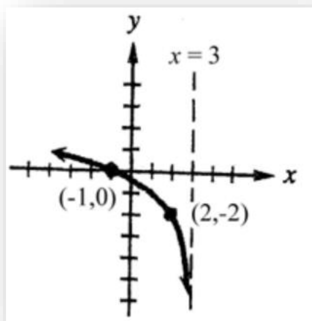
The graph of the function $y = \log_2 \lvert x-2 \rvert - 1$ is above the x-axis on A) $(-\infty, 0) \cup (4, \infty)$ B) $(-\infty, 4) \cup (8, \infty)$ C) $(2,6)$ D) $(2, \infty)$ E) $(-\infty, 6)$	Logarithmic Functions.
The domain of $f(x) = \ln \left\lvert \frac{3}{4-x^2} \right\rvert$ is A) $(-\infty, -2) \cup (-2,2) \cup (2, \infty)$ B) $(-2,2)$ C) $(-2,0) \cup (0,2)$ D) $(0,2)$ E) $(-\infty, -2) \cup (2, \infty)$	Logarithmic Functions.
The graph of $y = \lvert \log(x+1)^2 \rvert$ is increasing on the interval A) $(-2, -1) \cup (0, \infty)$ B) $(-\infty, -2) \cup (-1,0)$ C) $(-2, \infty)$ D) $(-\infty, -2)$ E) $(-1, \infty)$	Logarithmic Functions.

If the adjacent figure is the graph of the function $f(x) = -\log_a(x+b)$ then $a + b =$  A) 5 B) -1 C) 13 D) 6 E) $\frac{7}{2}$	Logarithmic Functions.
The domain D and the range R of the function $f(x) = \left\|\log_{1/3}(2-x)\right\| + 1$ are given by A) $D = (-\infty, 2); R = [1, \infty)$ B) $D = (-\infty, \infty); R = [0, \infty)$ C) $D = (-\infty, 2) \cup (2, \infty); R = (-\infty, 1]$ D) $D = (2, \infty); R = (-\infty, \infty)$ E) $D = (-\infty, 1); R = (-\infty, 0]$	Logarithmic Functions.
The graph given on the right can be represented by  A) $y = \log_2(x-2)$ B) $y = -\log_2 \|(2-x)\|$ C) $y = -\log_2(3-x)$ D) $y = -\log_2(2-x)$ E) $y = \|\log_2(2-x)\|$	Logarithmic Functions.
The graph of the function $y = \log\|x-2\|$ lies below the x-axis over the interval A) $(-\infty, 1) \cup (3, \infty)$ B) $(0,1) \cup (1,2)$ C) $(1,2) \cup (2,3)$ D) $(-\infty, 1) \cup (2, \infty)$ E) $(1,3)$	Logarithmic Functions.

The domain of the function $f(x) = \log_4\left(\frac{\lvert 3-x\rvert}{x^2+x-2}\right)$ is A) $(-\infty,-2) \cup (1,3)$ B) $(-\infty,3) \cup (3,\infty)$ C) $(-\infty,-2) \cup (1,3) \cup (3,\infty)$ D) $(-2,1) \cup (1,3)$ E) $(-\infty,-2) \cup (3,\infty)$	Logarithmic Functions.
The function $f(x) = \log_2\left(\frac{3+x}{8}\right)$ is A) increasing and passing through the quadrants I and IV. B) decreasing and passing through the quadrants III and IV. C) increasing and passing through the quadrants II and III. D) decreasing and passing through the quadrants II, III and IV. E) increasing and passing through the quadrants I, III and IV.	Logarithmic Functions.
The domain of the function $f(x) = \ln(e^{-x} - e^{x})$ is A) $(-\infty,\infty)$ B) $(-\infty,0)$ C) $(-\infty,0]$ D) $(0,\infty)$ E) $(0,1)$	Logarithmic Functions.
The domain in interval notation of the function $f(x) = \ln\left\lvert\frac{x-5}{x}\right\rvert$ A) $(-\infty,0) \cup (5,\infty)$ B) $(-\infty,0) \cup (0,5) \cup (5,\infty)$ C) $(-\infty,0) \cup [5,\infty)$ D) $(-\infty,\infty)$ E) $(5,\infty)$	Logarithmic Functions.

If $f(x) = \log_2(4 - x)$, which one of the following statements is true? A) The graph of f is below the x-axis on the interval $(3,4)$. B) The graph of f is below the x-axis on the interval $(-\infty, 3)$. C) The domain of f is $(4, \infty)$. D) The domain of f is $(0, \infty)$. E) The graph of f is above the x-axis on the interval $(3, \infty)$.	Logarithmic Functions.
If $f(x) = -\log_{1/2}(-x)$, then A) the graph of f is decreasing over the interval $(-\infty, 0)$ B) the graph of f neither decreasing nor increasing. C) Point $\left(\frac{1}{2}, 1\right)$ is on the graph of f D) the range of f is $(0, \infty)$ E) x-axis is a horizontal asymptote.	Logarithmic Functions.
The graph of the function $f(x) = \log_{1/3}(3 - x)$ A) is increasing over the entire domain B) has domain $(-\infty, 0)$ C) has vertical asymptote at $x = 2$ D) has x intercept - 1 E) has range $(0, \infty)$	Logarithmic Functions.
If $f(x) = \log(x - 3)^2$ then: A) the graph of f is above x-axis on the interval $(-\infty, 2) \cup (4, \infty)$. B) the graph of f is below x-axis on the interval $(-3,0) \cup (0,3)$. C) the graph of f is above x-axis on the interval $(3,4)$. D) the line $x = 0$ is a vertical asymptote of f.	Logarithmic Functions.

If $f(x) = e^x - 1$, then the graph of $f^{-1}(x)$ lies below the x-axis over the interval A) $(-1,0)$ B) $(-\infty, 0)$ C) $(-1, \infty)$ D) $(0, \infty)$ E) $(-\infty, -1)$	Logarithmic Functions.
If $f(x) = \ln(2\sqrt{x} - e)$, then $f\left(e^{2\ln e}\right) =$ A) 1 B) 0 C) e D) $\ln 2$ E) -1	Logarithmic Functions.
The graph of the function $f(x) = \log_2(x-1)^2$ is completely below x-axis on the Interval: (a) $(0,1) \cup (1,2)$ (b) $(-\infty, -1) \cup (1, \infty)$ (c) $(1,2)$ (d) $(-2, -1) \cup (-1,0)$ (e) $(-\infty, 0) \cup (2, \infty)$	Logarithmic Functions.
The domain of the function $f(x) = \ln\left(\frac{x-3}{x}\right) - 2$, in interval notation, is: A) $(-\infty, 0) \cup (3, \infty)$ B) $(-\infty, 0) \cup (0,3)$ C) $(3, \infty)$ D) $(-\infty, 0)$ E) $(0,3)$	Logarithmic Functions.

If $f(x) = \left(\frac{1}{2}\right)^x - 2$, then $f^{-1}(x)$ is equal to (a) $\log_{\frac{1}{2}}(x+2)$ (b) $\log_2\left(x+\frac{1}{2}\right)$ (c) $\log_{\frac{1}{2}}(x-2)$ (d) $\log_2(x-2)$ (e) $\log_{\frac{1}{2}} x$	Logarithmic Functions.
If the adjacent figure represents the graph of $y = \log_2(-x+a) + b$, then $a + b =$ A) 1 B) 5 C) 3 D) 2 E) 3/2 	Logarithmic Functions.