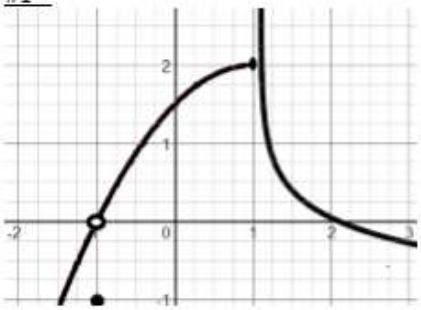
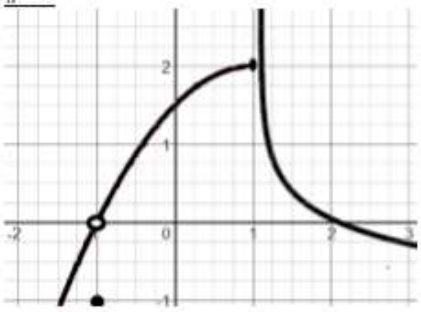
Unit 1 - Limits

Beginning in box #1, answer the question. Use that answer to find your next problem.

Ans: ∞ #1  Find $f(-1)$.	Ans: 0 #___ $\lim_{x\to 0} \dfrac{\frac{1}{2+x}-\frac{1}{2}}{x}$
Ans: DNE (and not ∞ or -∞) #___ $f(x) = \dfrac{x^3-4x^2+3x-12}{x^2-6x+8}$ $f(x)$ has a hole at x = ?.	Ans: 0.249 #___ $\lim_{x\to 0} \dfrac{\sqrt{x+3}-\sqrt{3}}{x}$
Ans: 3 #___  Find $\lim_{x\to 1} f(x)$	Ans: -1 #___ $\lim_{x\to 1} \dfrac{x^3-1}{x^2+x-2}$
Ans: 2 #___ $\lim_{x\to 1^-} \dfrac{x}{x^2-1}$	Ans: -2 #___ $\lim_{\Delta x\to 0} \dfrac{(4+\Delta x)^2-3(4+\Delta x)-4}{\Delta x}$

Ans: -¼
#___

$$f(x) = \frac{x^2 - 5x + 6}{x^2 + 2x - 15}$$

$f(x)$ has a vertical asymptote at x = ?.

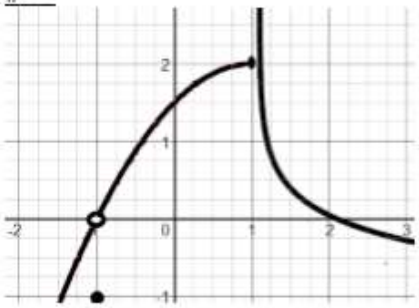
Ans: 4
#___

Is $f(x) = \begin{cases} \cos x, x < 0 \\ x^2 + 1, x \geq 0 \end{cases}$ continuous at x = 0?

If yes, it is continuous, then go find the Ans: -2.

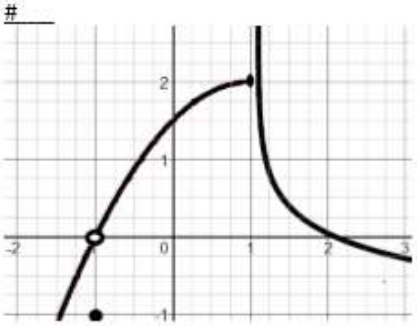
If no, it is not continuous, then go find the Ans: 5.

Ans: -∞
#___



Find $\lim_{x \to 1^+} f(x)$

Ans: 5
#___



Find $f(1)$.

Ans: 0.289
#___

Is $f(x) = \begin{cases} x, x \leq 1 \\ 2x - 3, x > 1 \end{cases}$ continuous at x = 1?

If yes, it is continuous, then go find the Ans: 3.

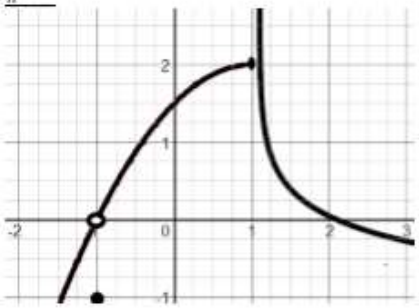
If no, it is not continuous, then go find the Ans: -4.

Ans: -5
#___

$$f(x) = \frac{x^2 - 5x + 6}{x^2 + 2x - 15}$$

$f(x)$ has a removable discontinuity at x = ?.

Ans: -4
#___



Find $\lim_{x \to -1} f(x)$

Ans: 1
#___

x	1.9	1.99	1.999	2	2.001	2.01	2.1
$f(x)$	A	B	C	-	D	E	F

$\lim_{x \to 2} \frac{x - 2}{x^2 - 4}$ Filling in the table above, what value would take the place of E? (Round to three places.)

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