

August 31, 2026

National Trail Mix Day

Today in History:

Edison patents the Kinetograph (1897)

Jack the Ripper claims first victim (1888)

Number of the Day: 490

490 = $2 \times 5 \times 7 \times 7$

490 is the number of different scores possible in 10-team round-robin tournament.

Fun Fact:

The Titanic was the first ship to use the SOS signal.

Quote of the Day:

"Sometimes, what you're looking for is already there."

-Aretha Franklin

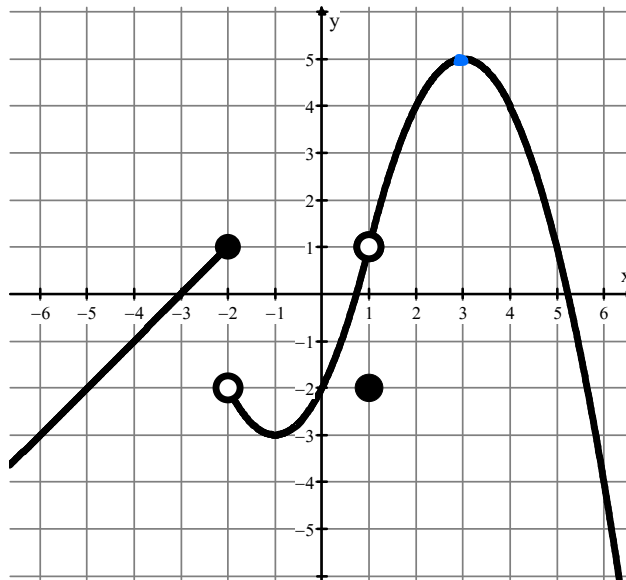
Today's Weather:

Partly cloudy, High 83°.

Math 121

Quiz #4

Use the graph below of $f(x)$ to find:



a) $\lim_{x \rightarrow 3} f(x) = 5$

b) $\lim_{x \rightarrow 1} f(x) = 1$

c) $\lim_{x \rightarrow -2^-} f(x) = 1$

d) $\lim_{x \rightarrow -2^+} f(x) = -2$

⑪ $\lim_{x \rightarrow 0} x^2 = 0$

IF x IS "CLOSE" TO ZERO
 x^2 IS "CLOSE" TO ZERO

$|x^2 - 0|$ IS THE DISTANCE
 FROM x^2 TO 0

$|x - 0|$ IS THE DISTANCE
 FROM x TO 0

$$\underline{|x^2 - 0| = |x^2| = |x| \cdot |x| < |x| = \underline{|x - 0|}}$$

LIMIT RULES

$$\lim_{x \rightarrow c} K = K$$

$$\lim_{x \rightarrow c} x = c$$

IF $\lim_{x \rightarrow c} f(x) = L$

$$\lim_{x \rightarrow c} g(x) = M$$

① $\lim_{x \rightarrow c} (f(x) + g(x)) = L + M$

② $\lim_{x \rightarrow c} k f(x) = k L$

③ $\lim_{x \rightarrow c} (f(x) \cdot g(x)) = L \cdot M$

$$(4) \lim_{x \rightarrow c} \frac{f(x)}{g(x)} = \frac{L}{M} \quad M \neq 0$$

$$(5) \lim_{x \rightarrow c} (f(x))^N = L^N$$

$$(6) \lim_{x \rightarrow c} \sqrt[N]{f(x)} = \sqrt[N]{L} \quad \text{IF IT IS OK.}$$

$$(1) \lim_{x \rightarrow 2} x^2 = 4$$

$$(2) \lim_{x \rightarrow 1} (x^2 + x + 2) = 4$$

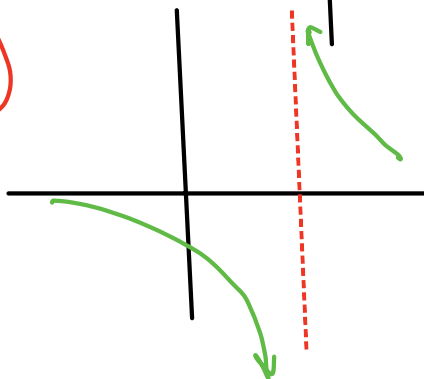
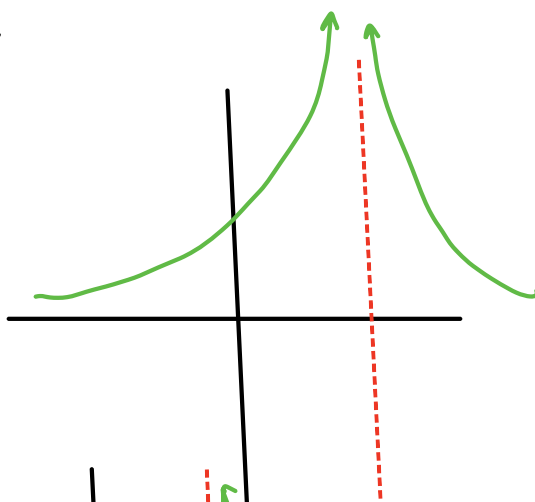
$$(3) \lim_{x \rightarrow 1} \sqrt{x^2 + x + 2} = 2$$

$$(4) \lim_{x \rightarrow 5} \frac{x^3}{7x+1} = \frac{125}{36}$$

$$(5) \lim_{x \rightarrow 3} \frac{1}{(x-3)^2} = \begin{matrix} +\infty \\ \text{DNE} \end{matrix}$$

$$(6) \lim_{x \rightarrow 3} \frac{1}{x-3} = \text{DNE.}$$

~~$+\infty$~~



$$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} = \lim_{x \rightarrow 2} \frac{\cancel{(x-2)}(x+2)}{\cancel{x-2}} = 4$$

$$f(x) = \frac{x^2 - 4}{x - 2} \neq g(x) = x + 2$$

DOMAIN $\forall x$

DOMAIN

$$x \neq 2$$