Name: Richard

MATH 200 – QUIZ 4

February 5, 2015

1. $\lim_{x\to 0} \cos\left(\frac{\pi}{\sqrt{19-3\sec(2x)}}\right) =$ $\cos\left(\lim_{x\to 0} \frac{\pi}{\sqrt{19-3\sec(2x)}}\right) = \cos\left(\frac{\pi}{\sqrt{19-3\sec(2\cdot 0)}}\right)$

Because cos is continuous, we can bring the limit in

$= \cos\left(\frac{\pi}{\sqrt{19-3\cdot 1}}\right)$

$= \cos\left(\frac{\pi}{\sqrt{16}}\right)$

$= \cos\left(\frac{\pi}{4}\right) = \boxed{\frac{\sqrt{2}}{2}}$

2. Draw the graph $y = f(x)$ of a function that meets the following conditions.

(a) $f(x)$ is continuous everywhere except at $x = 1$ and $x = 2$.

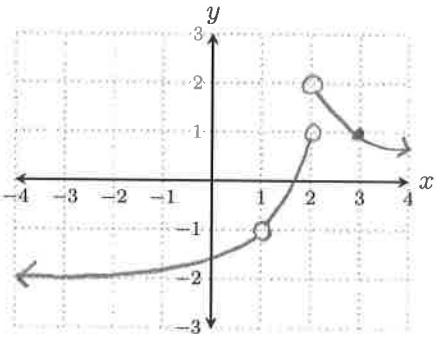
(b) $f(3) = 1$

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

(d) $\lim_{x\to 2^-} f(x) = 1$

(e) $\lim_{x\to 2^+} f(x) = 2$

Here is one such function



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1. $\lim_{x\to \pi} \sin(x - \sin(x)) =$ $\sin\left(\lim_{x\to \pi} (x - \sin(x))\right) = \sin(\pi - \sin(\pi))$

Because sin is continuous, we can bring the limit in

$= \sin(\pi - 0)$

$= \sin(\pi) = \boxed{0}$

2. Draw the graph $y = f(x)$ of a function that meets the following conditions.

(a) $f(x)$ is continuous everywhere except at $x = -1$ and $x = 1$.

(b) $f(3) = 2$

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

(d) $\lim_{x\to 1^-} f(x) = 1$

(e) $\lim_{x\to 1^+} f(x) = -1$

Here is one such function