

### Math 115 Fall 13 Exam 1 Answers

1) Horizontal asymptote:  $y = 61$ . Vertical Asymptote:  $x = -5$

2) a)  $\lim_{x \rightarrow 2} \frac{\frac{2x-3}{5x-4} - 1/6}{x-2}$

b)  $(7/36)(x-2) = y - 1/6$

3) a)  $m = 1$

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4) We have  $f(0) = 1 > 0$  and  $f(1) = -3 < 0$ . Then since  $f$  is continuous everywhere,  $f$  has a zero in  $[-1, 1]$  by the intermediate value theorem.

5) a)  $-3$

b)  $0$  (squeeze theorem)

c)  $1/2$