

NAME: _____ Score _____/10

Please **print** your name**No Decimals No mixed numbers No complex fractions No boxed or circled answers****Do all sketching on the coordinate system provided.**

1. Consider the function f whose rule is $f(x) = \frac{4x^2 + 5x - 6}{2x^2 - 9x - 5} = \frac{(4x - 3)(x + 2)}{(2x + 1)(x - 5)}$

a. What is the domain of f ? _____ sketch it.b. What are the zeros of f ? _____ sketch it.c. What are the vertical asymptotes of f ? _____ sketch it.d. What is the horizontal asymptote of f ? _____ sketch it.e. Sketch the graph of f . The following calculations will help. I did some for you.

i. $f(-3) = \frac{(4[-3] - 3)(-3 + 2)}{(2[-3] + 1)(-3 - 5)} = \frac{(-15)(-1)}{(-5)(-8)} = \frac{15}{40} = \frac{3}{8}$. Plot the corresponding point.

ii. Calculate $f(-1)$. Plot the corresponding point.iii. Calculate $f(0)$. Plot the corresponding point.

iv. $f(1) = -\frac{1}{4}$. Plot the corresponding point.

v. $f(7) = \frac{45}{6}$. Plot the corresponding point.

vi. The graph of f crosses its horizontal asymptote at $\left(-\frac{1}{5}, 2\right)$.