

1. **(4 points)** Using long division, find the quotient and remainder when $4x^3 - 4x^2 - 4x + 6$ is divided by $2x^2 - x - 5$. Label which is which.

2. **(3 points)** Find the set of *possible* rational zeroes of the function $f(x) = 3x^6 + 3x^5 - x + 10$; you do not need to test to determine that they are actually zeroes.

3. **(5 points)** Calculate the zeroes (if any), vertical asymptotes (if any), and horizontal asymptote (if any) of $g(x) = \frac{(2x-1)(x+2)}{(2x+3)(3x-4)}$. Label which is which.

4. **(3 points)** Evaluate the following exponential functions at the given values. Write your final answer as a number without exponents.
 - (a) If $f(x) = 2^{x+1}$, calculate $f(3)$.

 - (b) If $g(x) = \left(\frac{2}{3}\right)^{6-3x}$, calculate $g(2)$.

 - (c) If $h(x) = 16^{x-2}$, calculate $h\left(\frac{7}{2}\right)$.