6. [12 points] The functions $P(x)$ and $Q(x)$ below are two polynomials.

$$P(x) = 5(3x^2 - 4)^2(2x + 3)(x - 1) \qquad\qquad Q(x) = 5x(4x - 4)(2x + 3)^2$$

Let $R(x)$ be the rational function given by $R(x) = \dfrac{P(x)}{Q(x)}$.

Find the following. If there is no answer for a given question, write NONE. You do not need to show work.

a. Find all zeros of $P(x)$.

Answer: Zeros at $x = $ _____ $\pm\sqrt{4/3}, 1, -3/2$ _____

b. Find all zeros of $Q(x)$.

Answer: Zeros at $x = $ _____ $0, 1, -3/2$ _____

c. Find all zeros of $R(x)$.

Answer: Zeros at $x = $ _____ $\pm\sqrt{4/3}$ _____

d. Give the **equations** of any vertical asymptote(s) of $R(x)$.

Answer: _____ $x = 0$ **and** $x = -3/2$ _____

e. Give the **equations** of any horizontal asymptote(s) of $R(x)$.

Answer: _____ **none** _____

f. Give the (x, y) coordinates of any holes of $R(x)$.

Answer: _____ $(1, 1/20)$ _____