Functions – Finding the Domain of a function

1. i) Write down the values of x which must be excluded from the domain of the following
   functions.
   ii) Hence, state clearly the Domain for each function.

Part A

a) $g(x) = \dfrac{1 - 7x}{4x}$ b) $f(x) = \dfrac{-7x - 5}{x - 1}$ c) $h(x) = \dfrac{-5x - 9}{5x - 2}$ d) $f(x) = \dfrac{-8}{x} - 5$

Part B

a) $g(x) = 7\sqrt{x} + 6$ b) $h(x) = \sqrt{\left(\dfrac{-x + 10}{4}\right)}$ c) $g(x) = \sqrt{(-3x - 9)}$ d) $h(x) = \sqrt{\left(\dfrac{-x}{2}\right)} - 5$

Part C

a) $f(x) = \dfrac{2x - 5}{3x - 9}$ b) $g(x) = \sqrt{\left(\dfrac{x - 9}{6}\right)}$ c) $f(x) = 9\sqrt{x} - 3$ d) $h(x) = \dfrac{x + 7}{x - 4}$

Part D

a) $h(x) = \dfrac{1}{-5 - 4x}$ b) $g(x) = \dfrac{10}{x^2 - 3x - 4}$ c) $f(x) = \dfrac{1 - 4x}{6x}$ d) $g(x) = \dfrac{2x - 3}{6x - 5}$

Part E

a) $f(x) = \sqrt{(-4x + 5)}$ b) $h(x) = \sqrt{\left(\dfrac{-x}{2}\right)} + 3$ c) $h(x) = 8\sqrt{x} - 4$ d) $g(x) = \sqrt{(-5x - 3)}$

Part F

a) $f(x) = \dfrac{x + 4}{x - 3}$ b) $g(x) = \sqrt{\left(\dfrac{x - 6}{8}\right)}$ c) $h(x) = \sqrt{\left(\dfrac{x}{2}\right)} + 7$ d) $f(x) = \dfrac{5x + 5}{x - 1}$