

6.1 - Dériver des fonctions

Dériver les fonctions suivantes :

$$f_1(x) = 4x^2 - 5x + \sqrt{5}$$

$$f_2(x) = \frac{3}{x} - 2x^4 + 3\sqrt{x}$$

$$f_3(x) = -5x^3 + 4x^2 - 5 + \frac{2}{x} - \frac{7}{x^2}$$

$$f_4(x) = \frac{5x-2}{3}$$

$$f_5(x) = (-3x+2)\sqrt{x}$$

$$f_6(x) = \frac{2x+1}{3-5x}$$

$$f_7(x) = \frac{3x+5}{4x^2-2x+1}$$

$$f_8(x) = (4x+1)^4$$

$$f_9(x) = \sqrt{3x+5}$$

$$f_{10}(x) = \frac{3}{(6x+1)^2}$$

$$f_{11}(x) = 3x^4 - 7x^2 - 5x + 2$$

$$f_{12}(x) = -3x^2 - 4\sqrt{x} - \frac{7}{x}$$

$$f_{13}(x) = -8x^5 + 3x^3 - 4x - \frac{4}{x^2} + \frac{1}{x^3}$$

$$f_{14}(x) = \frac{-7x+3}{\sqrt{2}}$$

$$f_{15}(x) = (-3x^2+1)\sqrt{x}$$

$$f_{16}(x) = \frac{3x+4}{-2x+1}$$

$$f_{17}(x) = \frac{3x-7}{x^2+x+1}$$

$$f_{18}(x) = (-2x+3)^5.$$

$$f_{19}(x) = \sqrt{-4x+3}$$

$$f_{20}(x) = \frac{-2}{(5x+2)^3}$$

$$f_{21}(x) = -7x^3 + 4x^2 - \sqrt{2}x + \sqrt{3}$$

$$f_{22}(x) = 4x^3 - 2x + 3\sqrt{x} + \frac{8}{x}$$

$$f_{23}(x) = -3x^2 - \sqrt{7} - \frac{3}{x^2} + \frac{8}{x^5}$$

$$f_{24}(x) = \frac{5x^2+2x-3}{7}$$

$$f_{25}(x) = (2x^2+1)\sqrt{x}$$

$$f_{26}(x) = \frac{6x-7}{2x+1}$$

$$f_{27}(x) = \frac{5x^2-2x+1}{6x+5}$$

$$f_{28}(x) = (-3x+4)^3$$

$$f_{29}(x) = \sqrt{-7x+2}$$

$$f_{30}(x) = \frac{-5}{(5x-3)^2}$$

$$f_{31}(x) = -7x^5 + 4x^3 - 12x + 3\sqrt{2}$$

$$f_{32}(x) = 12x^3 - 4x^2 - \sqrt{5}x - \frac{2}{x} + 5\sqrt{x}$$

$$f_{33}(x) = 5x^3 + 6x - 3 + \frac{4}{x^2} - \frac{7}{x^5}$$

$$f_{34}(x) = \frac{-3x^2+5x+1}{9}$$

$$f_{35}(x) = \sqrt{x}(3x^2+2x)$$

$$f_{36}(x) = \frac{-3x+2}{5x-3}$$

$$f_{37}(x) = \frac{2x+3}{3x^2-x+2}$$

$$f_{38}(x) = (4x+1)^3$$

$$f_{39}(x) = \sqrt{8x+1}.$$

$$f_{40}(x) = \frac{-2}{(5x+1)^3}$$

$$f_{41}(x) = -3x^4 + 5x^2 - 8\sqrt{3}x + \frac{5}{3}$$

$$f_{42}(x) = 5x^4 - 3x^2 + 8 - \frac{4}{x} + 5\sqrt{x}$$

$$f_{43}(x) = -4x^3 + 5x^2 + 2\sqrt{7} - \frac{4}{x^2} + \frac{7}{x^3}$$

$$f_{44}(x) = \frac{3x^2-5x+2}{3}$$

$$f_{45}(x) = (-4x+2)\sqrt{x}$$

$$f_{46}(x) = \frac{3-5x}{5+2x}$$

$$f_{47}(x) = \frac{4x+1}{1-2x^2}$$

$$f_{48}(x) = (-5x+1)^4$$

$$f_{49}(x) = \sqrt{6x+4}$$

$$f_{50}(x) = \frac{3}{(-3x+2^2)}$$

$$f_{51}(x) = -9x^5 + 3x^4 - 2x^2 + 7x - \sqrt{11}$$

$$f_{52}(x) = 4x^3 - 8x^2 + 2\sqrt{3} - \frac{1}{x} + 7\sqrt{x}$$

$$f_{53}(x) = 4x^3 - 3x^2 - 8x + 5 - \frac{3}{x^2} + \frac{7}{x^4}$$

$$f_{54}(x) = \frac{-2x^2 + 7x + 6}{5}$$

$$f_{55}(x) = (-7x+2)\sqrt{x}$$

$$f_{56}(x) = \frac{x+1}{-2x+3}$$

$$f_{57}(x) = \frac{(5x^2 - 2x + 3)}{4x+1}$$

$$f_{58}(x) = (-5x+4)^3$$

$$f_{59}(x) = \sqrt{6x+7}.$$

$$f_{60}(x) = \frac{-3}{(7x+1)^4}$$

$$f_{61}(x) = -4x^5 + 3x^4 - 8x^2 - 4\sqrt{5}x + \frac{3}{2}$$

$$f_{62}(x) = 4x^3 - 8x^2 - \frac{5}{x} - 8\sqrt{x}$$

$$f_{63}(x) = 9x^3 - 5\sqrt{3}x + \frac{4}{x^2} - \frac{8}{x^5}$$

$$f_{64}(x) = \frac{8x^2 - 3x + 7}{9}$$

$$f_{65}(x) = (x^2 - x + 1)\sqrt{x}$$

$$f_{66}(x) = \frac{-5x+9}{3x+2}$$

$$f_{67}(x) = \frac{7x^2 - 3x + 4}{4x+3}$$

$$f_{68}(x) = (-6x+5)^3$$

$$f_{69}(x) = \sqrt{5x-1}$$

$$f_{70}(x) = \frac{-4}{(3x+1)^2}$$

$$f_{71}(x) = 5x^4 - 3x^3 + 2x - \sqrt{11}x + \frac{7}{4}$$

$$f_{72}(x) = -4x^6 + 7x^3 - 4x^2 - 7\sqrt{x} - \frac{5}{x}$$

$$f_{73}(x) = \sqrt{3}x^2 - 7x + \frac{11}{3} - \frac{5}{x^2} + \frac{7}{x^5}$$

$$f_{74}(x) = \frac{-8x^2 + 4x + 3}{11}$$

$$f_{75}(x) = (-5x+8)\sqrt{x}$$

$$f_{76}(x) = \frac{-2x+4}{5x+7}$$

$$f_{77}(x) = \frac{4x+5}{5x^2 - 3x + 7}$$

$$f_{78}(x) = (-3x+5)^4$$

$$f_{79}(x) = \sqrt{5x+1}$$

$$f_{80}(x) = \frac{-3}{(6x-1)^2}$$

$$f_{81}(x) = -5x^6 - 4x^3 + 7x^2 - \sqrt{5}x - \frac{2}{3}$$

$$f_{82}(x) = -5x^2 + 8x - \frac{7}{x} + 5\sqrt{x}$$

$$f_{83}(x) = -8x^3 + x^2 - \sqrt{7}x + \frac{5}{7} - \frac{8}{x^2} + \frac{11}{x^3}$$

$$f_{84}(x) = \frac{-7x^3 + 5x^2 - 6}{12}$$

$$f_{85}(x) = (-4x+7)\sqrt{x}$$

$$f_{86}(x) = \frac{5x-4}{-2x+9}$$

$$f_{87}(x) = \frac{-3x+5}{4x^2 + 3x - 2}$$

$$f_{88}(x) = (-7x+3)^4$$

$$f_{89}(x) = \sqrt{-6x+5}$$

$$f_{90}(x) = \frac{-7}{(4x+1)^3}$$

$$f_{91}(x) = 6x^3 - 5x^2 + 2\sqrt{3}x - \frac{7}{8}$$

$$f_{92}(x) = -5x^3 + 8x^2 + x - \frac{5}{x} + 11\sqrt{x}$$

$$f_{93}(x) = -6x^3 - 5x^2 - \sqrt{3}x - \frac{7}{x^2} + \frac{8}{x^4}$$

$$f_{94}(x) = \frac{4x^2 - 5x + 7}{2}$$

$$f_{95}(x) = (-3x+5)\sqrt{x}$$

$$f_{96}(x) = \frac{-4x+6}{2x-1}$$

$$f_{97}(x) = \frac{4x^2 - 8x + 1}{-3x+1}$$

$$f_{98}(x) = (6x+5)^3$$

$$f_{99}(x) = \sqrt{-9x+2}$$

$$f_{100}(x) = \frac{11}{(-4x+1)^2}$$

6.2 - Déterminer une équation de tangente

Déterminer une équation de la tangente à la courbe représentative de la fonction f au point d'abscisse a

$$f_1(x) = x^3 - 3x + 1 \quad a = 1$$

$$f_2(x) = 3 - 4\sqrt{x} \quad a = 16$$

$$f_3(x) = \frac{4x+2}{x-1} \quad a = 2$$

$$f_4(x) = x\sqrt{x} \quad a = 4$$

$$f_5(x) = (2x+3)^4 \quad a = -2$$

$$f_6(x) = \frac{5}{x^3} \quad a = -3$$

$$f_7(x) = \frac{x^2 - 3x + 6}{x-1} \quad a = 2$$

$$f_8(x) = \frac{5}{(2x-1)^2} \quad a = 1$$

$$f_9(x) = \frac{(4x-1)^2}{2x+3} \quad a = -1$$

$$f_{10}(x) = \frac{\sqrt{x}}{x+3} \quad a = 9$$

$$f_{11}(x) = 2x^3 - x^2 + 7 \quad a = 2$$

$$f_{12}(x) = 5x - 3\sqrt{x} \quad a = 9$$

$$f_{13}(x) = \frac{-3x+2}{2x-1} \quad a = 1$$

$$f_{14}(x) = x^2\sqrt{x} \quad a = 4$$

$$f_{15}(x) = (-2x+3)^3 \quad a = 2$$

$$f_{16}(x) = \frac{-3}{x^4} \quad a = -1$$

$$f_{17}(x) = \frac{3x^2 - x + 5}{x+1} \quad a = -2$$

$$f_{18}(x) = -\frac{5}{(3x-4)^2} \quad a = 2$$

$$f_{19}(x) = \frac{(3x-1)^2}{4x+3} \quad a = -1$$

$$f_{20}(x) = \frac{\sqrt{x}}{x-3} \quad a = 4$$

$$f_{21}(x) = -3x^4 - 11x + 3 \quad a = -1$$

$$f_{22}(x) = x^2 + 7\sqrt{x} \quad a = 4$$

$$f_{23}(x) = \frac{8x+1}{3x-2} \quad a = 1$$

$$f_{24}(x) = (3x+1)\sqrt{x} \quad a = 9$$

$$f_{25}(x) = (-5x+4)^3 \quad a = 2$$

$$f_{26}(x) = \frac{-5}{x^3} \quad a = 2$$

$$f_{27}(x) = \frac{2x^2 - 3x + 1}{x-3} \quad a = 4$$

$$f_{28}(x) = \frac{7}{3x+1} \quad a = -1$$

$$f_{29}(x) = \frac{(4x+3)^2}{2x+3} \quad a = -1$$

$$f_{30}(x) = \frac{2\sqrt{x}}{4x-3} \quad a = 1$$

$$f_{31}(x) = 5x^3 + 3x^2 + 1 \quad a = -2$$

$$f_{32}(x) = 5x - 5\sqrt{x} \quad a = 25$$

$$f_{33}(x) = \frac{3x+5}{2x-7} \quad a = 4$$

$$f_{34}(x) = (x^2+1)\sqrt{x} \quad a = 1$$

$$f_{35}(x) = (-x+4)^5 \quad a = 5$$

$$f_{36}(x) = \frac{8}{x^2} \quad a = 3$$

$$f_{37}(x) = \frac{5x^2 - 7x + 3}{x-5} \quad a = 6$$

$$f_{38}(x) = \frac{3}{(5x-9)^2} \quad a = 2$$

$$f_{39}(x) = \frac{(-x+3)^2}{4x-3} \quad a = 1$$

$$f_{40}(x) = \frac{5\sqrt{x}}{x-2} \quad a = 4$$

$$f_{41}(x) = 8x^3 - 9x + 5 \quad a = 2$$

$$f_{42}(x) = 3x^2 - 1 + 3\sqrt{x} \quad a = 9$$

$$f_{43}(x) = \frac{3x-5}{5x-6} \quad a = -1$$

$$f_{44}(x) = (-2x+7)\sqrt{x} \quad a = 4$$

$$f_{45}(x) = (4x+3)^5 \quad a = -1$$

$$f_{46}(x) = \frac{-3}{x^4} \quad a = -2$$

$$f_{47}(x) = \frac{-2x^2 + 3x + 2}{x-3} \quad a = 5$$

$$f_{48}(x) = \frac{2}{(x-4)^2} \quad a = 5$$

$$f_{49}(x) = \frac{(4x+1)^2}{3x-5} \quad a = 2$$

$$f_{50}(x) = -\frac{3\sqrt{x}}{x+2} \quad a = 4$$

$$f_{51}(x) = 3x^3 - 4x^2 + 5 \quad a = -2$$

$$f_{52}(x) = 2x - 5\sqrt{x} + 3 \quad a = 9$$

$$f_{53}(x) = \frac{-2x+3}{4x-3} \quad a = 1$$

$$f_{54}(x) = (-3x+2)\sqrt{x} \quad a = 4$$

$$f_{55}(x) = (-5x+2)^3 \quad a = 3$$

$$f_{56}(x) = \frac{4}{x^3} \quad a = -2$$

$$f_{57}(x) = \frac{x^2 - x + 2}{2x - 1} \quad a = 1$$

$$f_{58}(x) = -\frac{4}{(x-3)^2} \quad a = 2$$

$$f_{59}(x) = \frac{(2x+5)^2}{3x-5} \quad a = 2$$

$$f_{60}(x) = \frac{\sqrt{x}}{2x+7} \quad a = 9$$

$$f_{61}(x) = -5x^4 + 3x^2 - 7x + 2 \quad a = 3$$

$$f_{62}(x) = -5\sqrt{x} + 7 \quad a = 4$$

$$f_{63}(x) = \frac{-3x+5}{4x+7} \quad a = -2$$

$$f_{64}(x) = (-6x+4)\sqrt{x} \quad a = 16$$

$$f_{65}(x) = (-5x+8)^3 \quad a = 2$$

$$f_{66}(x) = \frac{6}{x^4} \quad a = -2$$

$$f_{67}(x) = \frac{4x^2 - 3x + 2}{5x - 4} \quad a = 1$$

$$f_{68}(x) = \frac{2}{(x-2)^2} \quad a = -1$$

$$f_{69}(x) = \frac{(2x-3)^2}{x-1} \quad a = 2$$

$$f_{70}(x) = \frac{\sqrt{x}}{5x-2} \quad a = 4$$

$$f_{71}(x) = 2x^3 - 3x + 7 \quad a = -3$$

$$f_{72}(x) = 2x^2 - 5\sqrt{x} + 5 \quad a = 25$$

$$f_{73}(x) = \frac{-3x+2}{7x+6} \quad a = -1$$

$$f_{74}(x) = (4x+6)\sqrt{x} \quad a = 4$$

$$f_{75}(x) = (-3x+4)^3 \quad a = 2$$

$$f_{76}(x) = \frac{3}{x^4} \quad a = -2$$

$$f_{77}(x) = \frac{4x+1}{x^2+3x+3} \quad a = -1$$

$$f_{78}(x) = \frac{-2}{(2x+3)^3} \quad a = -1$$

$$f_{79}(x) = \frac{(4x+2)^2}{2x-3} \quad a = 2$$

$$f_{80}(x) = \frac{\sqrt{x}}{-2x+1} \quad a = 1$$

$$f_{81}(x) = -5x^3 - 3x^2 - 7x - 8 \quad a = -2$$

$$f_{82}(x) = -5\sqrt{x} + 8x - 5 \quad a = 4$$

$$f_{83}(x) = \frac{-5x+2}{7x-13} \quad a = 2$$

$$f_{84}(x) = (3x+7)\sqrt{x} \quad a = 9$$

$$f_{85}(x) = (-2x+5)^3 \quad a = 3$$

$$f_{86}(x) = \frac{-8}{x^4} \quad a = 2$$

$$f_{87}(x) = \frac{3x^2 - 5x + 1}{3x + 2} \quad a = -1$$

$$f_{88}(x) = \frac{5}{(x+4)^3} \quad a = -5$$

$$f_{89}(x) = \frac{(2x-3)^2}{4x+3} \quad a = -1$$

$$f_{90}(x) = \frac{-3\sqrt{x}}{2x-7} \quad a = 4$$

$$f_{91}(x) = 4x^3 - 5x^2 - 7x + 5 \quad a = -3$$

$$f_{92}(x) = -4x^2 - 8\sqrt{x} + \frac{5}{2} \quad a = 4$$

$$f_{93}(x) = \frac{-6x+1}{5x-9} \quad a = 2$$

$$f_{94}(x) = (-3x+7)\sqrt{x} \quad a = 9$$

$$f_{95}(x) = (-4x+7)^3 \quad a = 2$$

$$f_{96}(x) = \frac{-6}{x^3} \quad a = 6$$

$$f_{97}(x) = \frac{4x-2}{x^2-4x+3} \quad a = 2$$

$$f_{98}(x) = \frac{2}{(4x-11)^2} \quad a = 3$$

$$f_{99}(x) = \frac{(2x+7)^2}{x-2} \quad a = 3$$

$$f_{100}(x) = \frac{\sqrt{x}}{x+1} \quad a = 4$$

6.3 - Étudier le sens de variation

Étudier les variations des fonctions suivantes. On présentera les variations sous la forme d'un tableau mais les valeurs des extrema ne sont pas demandés.

$$f_1(x) = -2x^2 + 8x - 1$$

$$f_2(x) = 2x^3 + 6x$$

$$f_3(x) = x^4 - 4x^3$$

$$f_4(x) = \frac{2x+1}{x+2}$$

$$f_5(x) = \sqrt{3x-1}$$

$$f_6(x) = x^3 - 3x + 2$$

$$f_7(x) = \frac{4}{x-7}$$

$$f_8(x) = (2x-1)\sqrt{x}$$

$$f_9(x) = \frac{1}{x+1} - \frac{2}{x+2}$$

$$f_{10}(x) = \frac{x^2+5x+5}{x^2+x+1}$$

$$f_{11}(x) = 4x^2 - 6x + 7$$

$$f_{12}(x) = 3x^3 + 4x + 3$$

$$f_{13}(x) = \frac{x^4}{4} - 2x^3$$

$$f_{14}(x) = \frac{2x}{x-3}$$

$$f_{15}(x) = \sqrt{-2x+1}$$

$$f_{16}(x) = 2x^3 - 6x$$

$$f_{17}(x) = \frac{-2}{2x+1}$$

$$f_{18}(x) = (x-1)\sqrt{x+1}$$

$$f_{19}(x) = \frac{1}{2x+1} - \frac{1}{2x-1}$$

$$f_{20}(x) = \frac{x^2+7x+11}{x^2+3x+3}$$

$$f_{21}(x) = 2x^2 - 6x + 3$$

$$f_{22}(x) = x^3 + 3x + 7$$

$$f_{23}(x) = -\frac{x^4}{4} + 2x^2$$

$$f_{24}(x) = \frac{2x-4}{x-1}$$

$$f_{25}(x) = \sqrt{-5x+3}$$

$$f_{26}(x) = 2x^3 + 3x^2 + 7$$

$$f_{27}(x) = \frac{5}{2x-3}$$

$$f_{28}(x) = (2x-3)\sqrt{x-1}$$

$$f_{29}(x) = \frac{3}{x+1} - \frac{12}{x+2}$$

$$f_{30}(x) = \frac{x^2+3x+1}{x^2-x+1}$$

$$f_{31}(x) = x^2 + 4x - 5$$

$$f_{32}(x) = x^3 + 12x - 8$$

$$f_{33}(x) = x^4 - 4x$$

$$f_{34}(x) = \frac{1-2x}{x+4}$$

$$f_{35}(x) = \sqrt{7x-2}$$

$$f_{36}(x) = 2x^3 - 6x^2 - 18x + 3$$

$$f_{37}(x) = \frac{4}{-4x+1}$$

$$f_{38}(x) = (x-1)\sqrt{2x+1}$$

$$f_{39}(x) = \frac{4}{x+4} - \frac{5}{x+5}$$

$$f_{40}(x) = \frac{x^2-7x+11}{x^2-3x+3}$$

$$f_{41}(x) = 4x^2 + 2x - 1$$

$$f_{42}(x) = 3x^3 + 18x - 7$$

$$f_{43}(x) = 2x^4 + 8x^3$$

$$f_{44}(x) = \frac{-2x+3}{x-2}$$

$$f_{45}(x) = \sqrt{8x-3}$$

$$f_{46}(x) = 2x^3 - 9x^2 - 24x - 5$$

$$f_{47}(x) = \frac{-2}{-3x+2}$$

$$f_{48}(x) = (3x-2)\sqrt{x+2}$$

$$f_{49}(x) = \frac{1}{3x+2} - \frac{2}{3x+4}$$

$$f_{50}(x) = \frac{4x^2 + 24x + 31}{4x^2 + 8x + 7}$$

$$f_{51}(x) = 4x^2 + 2x - 1$$

$$f_{52}(x) = 3x^3 + 18x$$

$$f_{53}(x) = 2x^4 + 8x^3$$

$$f_{54}(x) = \frac{-2x + 3}{x - 2}$$

$$f_{55}(x) = \sqrt{8x - 3}$$

$$f_{56}(x) = 2x^3 - 6x + 5$$

$$f_{57}(x) = \frac{-2}{2x - 1}$$

$$f_{58}(x) = (4x + 1)\sqrt{2x + 1}$$

$$f_{59}(x) = \frac{1}{3x + 1} - \frac{3}{x + 1}$$

$$f_{60}(x) = \frac{x^2 + 9x + 19}{x^2 + 5x + 7}$$

$$f_{61}(x) = -5x^2 + 7x + 3$$

$$f_{62}(x) = 2x^3 + x^2 + x + 4$$

$$f_{63}(x) = 5x^4 - 10x^3 + 9$$

$$f_{64}(x) = \frac{4x + 1}{-2x + 3}$$

$$f_{65}(x) = \sqrt{-2x + 5}$$

$$f_{66}(x) = x^3 + 3x^2 - 9x - 7$$

$$f_{67}(x) = \frac{5}{-3x + 1}$$

$$f_{68}(x) = (3x + 2)\sqrt{x + 1}$$

$$f_{69}(x) = \frac{1}{2x + 1} - \frac{1}{2x + 3}$$

$$f_{70}(x) = \frac{4x^2 + 16x + 11}{4x^2 + 3}$$

$$f_{71}(x) = -7x^2 + 3x + 1$$

$$f_{72}(x) = 2x^3 - x^2 + 2x - 5$$

$$f_{73}(x) = 3x^4 - 4x^3 + 9$$

$$f_{74}(x) = \frac{-3x + 5}{2x + 3}$$

$$f_{75}(x) = \sqrt{4x - 5}$$

$$f_{76}(x) = 4x^3 + 3x^2 - 36x - 5$$

$$f_{77}(x) = \frac{7}{4x + 5}$$

$$f_{78}(x) = (x + 3)\sqrt{2x + 9}$$

$$f_{79}(x) = \frac{3}{2x + 9} - \frac{2}{3x + 6}$$

$$f_{80}(x) = \frac{4x^2 - 10x + 5}{4x^2 - 2x + 1}$$

$$f_{81}(x) = -5x^2 + 3x - 2$$

$$f_{82}(x) = x^3 - x^2 + 5x + 7$$

$$f_{83}(x) = -2x^4 + 5x^3 + 11$$

$$f_{84}(x) = \frac{-5x + 2}{2x - 7}$$

$$f_{85}(x) = \sqrt{-2x + 7}$$

$$f_{86}(x) = 2x^3 - 9x^2 - 60x - 4$$

$$f_{87}(x) = \frac{-2}{3x - 5}$$

$$f_{88}(x) = (2x - 1)\sqrt{3x + 1}$$

$$f_{89}(x) = \frac{4}{3x + 2} - \frac{2}{3x + 1}$$

$$f_{90}(x) = \frac{x^2 - 11x + 29}{x^2 - 7x + 13}$$

$$f_{91}(x) = -4x^2 + 5x - 3$$

$$f_{92}(x) = x^3 - x^2 + 5x - 7$$

$$f_{93}(x) = -5x^4 + 8x^3 - 11$$

$$f_{94}(x) = \frac{5x - 2}{-3x + 4}$$

$$f_{95}(x) = \sqrt{8x - 1}$$

$$f_{96}(x) = 2x^3 + 21x^2 + 72x - 5$$

$$f_{97}(x) = \frac{-3}{4x + 1}$$

$$f_{98}(x) = (x + 2)\sqrt{2x + 5}$$

$$f_{99}(x) = \frac{1}{2x + 5} - \frac{1}{2x + 3}$$

$$f_{100}(x) = \frac{x^2 + 13x + 41}{x^2 + 9x + 21}$$