$\boxed{1.3.1}$ On doit montrer que $F' = f$

a) $$F'(x) = \left(\frac{-2}{\sqrt{x^7}}\right)' = \left(\frac{-2}{x^{7/2}}\right)'$$

$$= \left(-2 \cdot \frac{1}{x^{7/2}}\right)' = -2\left(x^{-7/2}\right)'$$

$$= -2\left(-\frac{7}{2}\right) \cdot x^{\left(-\frac{7}{2}-1\right)}$$

$$= 7 \cdot x^{\left(-\frac{7}{2}-\frac{2}{2}\right)} = 7 \cdot x^{\left(-\frac{9}{2}\right)}$$

$$= 7 \cdot \frac{1}{x^{9/2}} = \frac{7}{\sqrt{x^9}}$$

b) $$F'(x) = \left(\frac{2x^2-1}{2-x^2}\right)' = \frac{(2x^2-1)'(2-x^2)-(2x^2-1)(2-x^2)'}{(2-x^2)^2}$$

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

$\boxed{1.3.1}$

b) (Suite) $F'(x) = \dfrac{8x \cancel{-4x^3} \cancel{+4x^3} - 2x}{(2-x^2)^2}$

$$= \frac{6x}{(2-x^2)^2}$$

$\boxed{1.3.2}$

a) $\left(\dfrac{1}{2x} + \dfrac{x^2}{4} + c\right)' = \left(\dfrac{1}{2x}\right)' + \left(\dfrac{x^2}{4}\right)'$

$$= -\frac{1}{(2x)^2} \cdot (2x)' + \frac{1}{4} \cdot 2x$$

$$= -\frac{1}{4x^2} \cdot 2 + \frac{x}{2}$$

$$= -\frac{1}{2x^2} + \frac{x}{2}$$

$\boxed{1.3.2}$

b) $$\left(\frac{4x^5-7x^3+7}{3x^2}+c\right)' =$$

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

$$\left(\frac{4}{3}x^3-\frac{7}{3}x+\frac{7}{3}x^{-2}\right)' =$$

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

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

$$4x^2-\frac{7}{3}-\frac{14}{3}\cdot x^{-3} =$$

$$4x^2-\frac{7}{3}-\frac{14}{3x^3}$$