Calculus Assignment

Find $\frac{dy}{dx}$ using the definition of the derivative please.

$$\frac{dy}{dx} = \lim_{h \to 0} \left(\frac{f(x+h) - f(x)}{h} \right)$$

(1) $f(x) = \frac{2x - 5}{7x + 3}$

(2) $f(x) = \frac{1}{\sqrt{3 - 8x}}$

(3) $f(x) = \sqrt[3]{9x + 7}$

(4) $f(x) = \sin(x)$

Calculus Assignment

Answers

(1) $\frac{dy}{dx} = \frac{41}{(7x + 3)^2}$

(2) $\frac{dy}{dx} = \frac{4}{(3 - 8x)\sqrt{3 - 8x}}$

(3) $\frac{dy}{dx} = \frac{3}{(9x + 7)^{\frac{2}{3}}}$

(4) $\frac{dy}{dx} = \cos(x)$