

1 Differentiate:

a  $\frac{5x}{x+1}$

b  $\frac{2x}{3x-2}$

c  $\frac{x+3}{2x+1}$

d  $\frac{3x^2}{(2x-1)^2}$

e  $\frac{6x}{(5x+3)^{\frac{1}{2}}}$

2 Find the value of  $\frac{dy}{dx}$  at the point  $(1, \frac{1}{4})$  on the curve with equation  $y = \frac{x}{3x+1}$ .

3 Find the value of  $\frac{dy}{dx}$  at the point  $(12, 3)$  on the curve with equation  $y = \frac{x+3}{(2x+1)^{\frac{1}{2}}}$ .

**Exercise 8C**

1 a  $\frac{5}{(x+1)^2}$

b  $\frac{-4}{(3x-2)^2}$

c  $\frac{-5}{(2x+1)^2}$

d  $\frac{-6x}{(2x-1)^3}$

e  $\frac{3(5x+6)}{(5x+3)^{\frac{3}{2}}}$

2  $\frac{1}{16}$

3  $\frac{6}{25}$