

Exercise 8A

1 Differentiate:

a $(1 + 2x)^4$

b $(3 - 2x^2)^{-5}$

c $(3 + 4x)^{\frac{1}{2}}$

d $(6x + x^2)^7$

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

f $\sqrt{7 - x}$

g $4(2 + 8x)^4$

h $3(8 - x)^{-6}$

2 Given that $y = \frac{1}{(4x + 1)^2}$ find the value of $\frac{dy}{dx}$ at $(\frac{1}{4}, \frac{1}{4})$.3 Given that $y = (5 - 2x)^3$ find the value of $\frac{dy}{dx}$ at $(1, 27)$.4 Find the value of $\frac{dy}{dx}$ at the point $(8, 2)$ on the curve with equation $3y^2 - 2y = x$.5 Find the value of $\frac{dy}{dx}$ at the point $(2\frac{1}{2}, 4)$ on the curve with equation $y^{\frac{1}{2}} + y^{-\frac{1}{2}} = x$.**Answers****Exercise 8A**

1 a $8(1 + 2x)^3$

b $20x(3 - 2x^2)^{-6}$

c $2(3 + 4x)^{-\frac{1}{2}}$

d $7(6 + 2x)(6x + x^2)^6$

e $-2(3 + 2x)^{-2}$

f $-\frac{1}{2}(7 - x)^{-\frac{1}{2}}$

g $128(2 + 8x)^3$

h $18(8 - x)^{-7}$

2 -1

3 -54

4 $\frac{1}{10}$

5 $5\frac{1}{3}$