

⑥

$$y = \frac{1}{(1-3x)^5}$$

$$= (1-3x)^{-5}$$

$$\frac{dy}{dx} = -5(1-3x)^{-6} \times (-3)$$

$$= 15(1-3x)^{-6}$$

Question			Generic scheme	Illustrative scheme	Max mark
6.			•¹ write in differentiable form •² start to differentiate •³ complete differentiation	•¹ $(1-3x)^{-5}$ stated or implied by •² •² $-5(1-3x)^{-6} \dots$ •³ $\dots \times (-3)$	3
Notes:					
1. Where candidates attempt to expand $(1-3x)^{-5}$, no further marks are available. 2. • ² is only available for differentiating an expression with a negative power.					
Commonly Observed Responses:					
Candidate A $y = (1-3x)^{-5}$ • ¹ ✓ $\frac{dy}{dx} = -5(1-3x)^{-6} \times -3$ • ² ✓ • ³ ✓ $\frac{dy}{dx} = -15(1-3x)^{-6}$			Candidate B $y = (1-3x)^{-5}$ • ¹ ✓ $\frac{dy}{dx} = -15(1-3x)^{-6}$ • ² ✓ • ³ ✗		
Candidate C $y = (1-3x)^{-5}$ • ¹ ✓ $\frac{dy}{dx} = -5(1-3x)^{-6} \times -3$ • ² ✓ • ³ ✗			Candidate D - differentiating over two lines $y = (1-3x)^{-5}$ • ¹ ✓ $\frac{dy}{dx} = -5(1-3x)^{-6}$ • ² ✓ • ³ ^ $\frac{dy}{dx} = 15(1-3x)^{-6}$		