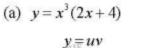
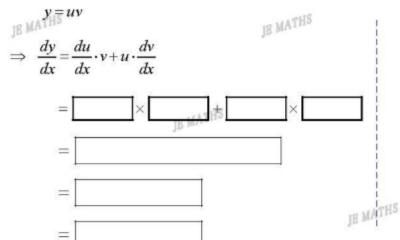
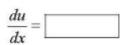
Stage 1

 Complete the setting out below to differentiate each function by the product rule. Express your answers in fully factorized form.



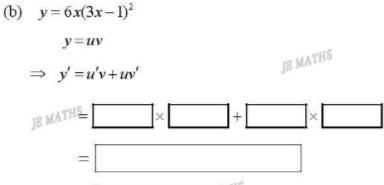


Let $u = x^3$ and v = 2x + 4.



$$\frac{dv}{dx} =$$





Let u = 6x and $v = (3x-1)^2$.

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u' =	
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v' =	
=	

2. (a) Differentiate $y = x^3(x-7)$ by expanding the bracket and differentiate each term.





(b) Differentiate $y = x^3(x-7)$ using the product rule with $u = x^3$ and v = x-7. Use the setting out shown in Question 1(a) and fully factorized your answer.

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3. (a) Differentiate y = (2x-3)(4x+5) by expanding the bracket and differentiate each term.

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(b) Differentiate y = (2x-3)(4x+5) using the product rule with u = 2z-3 and v = 4x+5. Use the setting out shown in Question 1(b) and fully factorized your answer.



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4. (a) Differentiate $y = (x^2 + 2)(x^2 - 7)$ by expanding the bracket and differentiate each term.



(b) Differentiate $y = (x^2 + 2)(x^2 - 7)$ by product rule with $u = x^2 + 2$ and $v = x^2 - 7$. Fully factorized your answer.



- 5. Let the function $y = 2x^5 (5x + 3)^3$ $\int_{\mathbb{R}} MATHS$
 - (i) Use product rule with $u = 2x^5$ and $v = (5x + 3)^3$, show that

$$\frac{dy}{dx} = 10x^4 (5x+3)^3 + 30x^5 (5x+3)^2$$
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(ii) By taking out the common factor $10x^4(5x+3)^2$, show that

$$\frac{dy}{dx} = 10x^4(5x+3)^2(8x+3).$$

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(iii) Hence, find the x-coordinates of the points on the curve where the tangent is horizontal.

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Differentiate each function by product rule and fully factorized your answer.

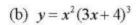
(a)
$$y = 2x(4x-1)^3$$

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(c) $y = x^3(1-2x)^5$
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(d) $y = x^4 (4-3x)^6$

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7. (i) Find the derivative of $y = 3x(2-x)^6$ by product rule.

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(ii) Hence, find the tangent and normal to the curve at the origin.

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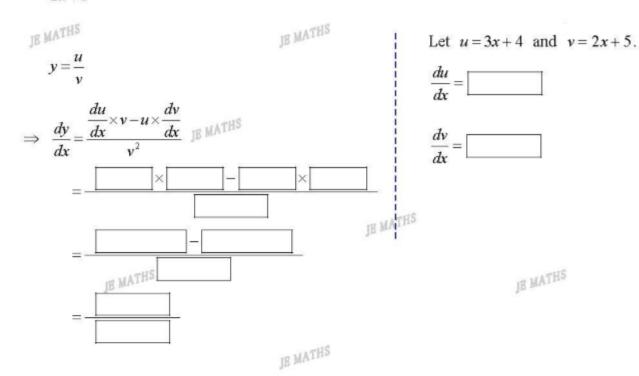
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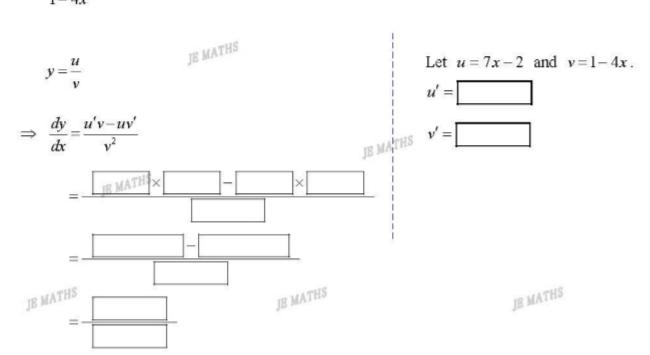
Stage 2

1. Complete the setting out below to differentiate each function by the quotient rule.

(a)
$$y = \frac{3x+4}{2x+5}$$



(b)
$$y = \frac{7x^{15}}{1-4x}$$



- Differentiate each function using the quotient rule.
 State u and v first, and use the setting out in Question 1.
 - (a) $y = \frac{x}{x+2}$

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(b) $y = \frac{x+4}{x-4}$ JE MATHS

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(c) $y = \frac{3x}{x+5}$

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

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(e) $y = \frac{1+x}{1-x}$

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(f) $y = \frac{x+5}{3x+1}$

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(g)
$$y = \frac{7x+3}{1-2x}$$

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(h)
$$y = \frac{2x-9}{5-3x}$$

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(i) $y = \frac{4x-5}{4-5x}$

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3. Differentiate each function using quotient rule.

Fully factorize your answer and find any x values for which the tangent is horizontal.

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

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(b)
$$y = \frac{x}{x^2 - 1}$$
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(c)
$$y = \frac{x^2}{1 - 2x}$$

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(d)
$$y = \frac{1+x^2}{1-x}$$

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(e)
$$y = \frac{x^2 - 3}{x^2 + 4}$$

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(f)
$$y = \frac{x^2 - 1}{x + 2}$$

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(g)
$$y = \frac{2x^2}{x^2 + 1}$$

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

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4. (a) Use chain rule to differentiate $y = \frac{1}{1-x}$ with u = 1-x and $y = u^{-1}$.

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(b) Use quotient rule to differentiate $y = \frac{1}{1-x}$ with u = 1 and v = 1-x.

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5. (a) Use chain rule to differentiate $y = \frac{1}{5x - 4}$ with u = 5x - 4 and $y = u^{-1}$.

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 $\int_{\mathbb{R}} \frac{1}{5x-4} = \int_{\mathbb{R}} \frac{1}{5x-4}$

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(b) Use quotient rule to differentiate $y = \frac{1}{5x - 4}$ with u = 1 and v = 5x - 4.

5x-4JE MATHS

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Stage 1

1. (a) y = uv

$$\Rightarrow \frac{dy}{dx} = \frac{du}{dx} \cdot v + u \cdot \frac{dv}{dx}$$

$$= 3x^{2} \times 2x + 4 + x^{3} \cdot 2$$

$$= 2x^{2} [(3x + 6) + x]$$

$$= 2x^{2} (4x + 6)$$

$$= 4x^{2} (2x + 3)$$
Let $u = x^{3}$ and $v = 2x + 4$.

$$\frac{du}{dx} = 3x^{2}$$

$$\frac{dv}{dx} = 2$$

(b)
$$y = uv$$

$$\Rightarrow y' = u'v + uv'$$

$$= \boxed{6} \times \boxed{(3x-1)^2 + \boxed{6x}} \times \boxed{6(3x-1)}$$

$$= \boxed{6(3x-1)[(3x-1)+6x]}$$

$$= \boxed{6(3x-1)[9x-1]}$$

$$= \boxed{6(3x-1)(9x-1)}$$

Let
$$u = 6x$$
 and $v = (3x-1)^2$.
 $u' = \boxed{6}$
 $v' = \boxed{2(3x-1) \times (3x-1)'}$
 $= \boxed{6(3x-1)}$

2. (a)
$$y = x^{3}(x-7) = x^{4} - 7x^{3}$$

$$\Rightarrow \frac{dy}{dx} = 4x^{3} - 7(3x^{2})$$

$$= 4x^{3} - 21x^{2}$$

$$= x^{2}(4x - 21)$$

(b)
$$y = x^3(x-7)$$

$$\Rightarrow \frac{dy}{dx} = \frac{du}{dx} \cdot v + u \cdot \frac{dv}{dx}$$

$$= 3x^2 \cdot (x-7) + x^3 \cdot 1$$

$$= x^2(3x-21+x)$$

$$= x^2(4x-21)$$
Let $u = x^3$ and $v = x-7$.
$$\frac{du}{dx} = 3x^2$$

$$\frac{dv}{dx} = 1$$

3. (a)
$$y = (2x-3)(4x+5) = 8x^2 - 2x - 15$$

$$\Rightarrow \frac{dy}{dx} = 8(2x) - 2 - 0 = 16x - 2$$

(b)

(b)
$$y = (2x-3)(4x+5)$$
 Let $u = 2x-3$ and $v = 4x+5$.

$$y' = u'v + uv'$$

$$= 2 \cdot (4x+5) + (2x + 3) \cdot 4$$

$$= 16x-2$$
Let $u = 2x-3$ and $v = 4x+5$.

4. (a)
$$y = (x^2 + 2)(x^2 - 7) = x^4 - 5x^2 - 14$$

$$\Rightarrow \frac{dy}{dx} = 4x^3 - 5(2x) - 0$$

$$= 4x^3 - 10x$$

$$= 2x(2x^2 - 5)$$

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$$y = (x^{2} + 2)(x^{2} - 7)$$

$$\Rightarrow \frac{dy}{dx} = \frac{du}{dx} \cdot v + u \cdot \frac{dv}{dx} \qquad (u = x^{2} + 2 \text{ and } v = x^{2} - 7)$$

$$= 2x \cdot (x^{2} - 7) + (x^{2} + 2) \cdot 2x$$

$$= 2x(2x^{2} - 5)$$

5. (i)
$$y = 2x^{5}(5x+3)^{3}$$
 Let $u = 2x^{5}$ and $v = (5x+3)^{3}$.

$$\Rightarrow y' = u'v + uv'$$

$$= 10x^{4}(5x+3)^{3} + 2x^{5} \times 15(5x+3)^{2}$$

$$= 10x^{4}(5x+3)^{3} + 30x^{5}(5x+3)^{2}$$

$$= 3(5x+3)^{2} \times 5$$

$$= 3(5x+3)^{2} \times 5$$

$$= 15(5x+3)^{2}$$

(ii)
$$\frac{dy}{dx} = 10x^4 (5x+3)^3 + 30x^5 (5x+3)^2$$

$$= 10x^4 (5x+3)^2 [(5x+3)+3x] \qquad \text{(factorize the common factor } 10x^4 (5x+3)^2)$$

$$= 10x^4 (5x+3)^2 [(5x+3)+3x] \qquad \text{(factorize the common factor } 10x^4 (5x+3)^2)$$

$$= 10x^4 (5x+3)^2 [(5x+3)+3x] \qquad \text{(factorize the common factor } 10x^4 (5x+3)^2)$$

(iii) Let
$$\frac{dy}{dx} = 0 \implies 10x^4(5x+3)^2(8x+3) = 0$$

 $\Rightarrow x^4(5x+3)^2(8x+3) = 0$
 $\Rightarrow x = 0, x = -\frac{3}{5}, x = -\frac{3}{8}$

6. (a) $y = 2x(4x-1)^3$ $\Rightarrow y' = (2x)' \times (4x-1)^3 + 2x \times \left[(4x-1)^3 \right]_{JB}' MATHS$ $= 2(4x-1)^3 + 2x \times 3(4x-1)^2 \cdot (4x-1)'$ $= 2(4x-1)^3 + 24x(4x-1)^2$ $= 2(4x-1)^3 + 24x(4x-1)^2$ $= 2(4x-1)^3 + 24x(4x-1)^2$

(b)
$$y = x^{2}(3x+4)^{3}$$

$$\Rightarrow y' = (x^{2})'(3x^{2}+4)^{3} + x^{2}[(3x+4)^{3}]'$$

$$= 2x \cdot (3x+4)^{3} + x^{2} \cdot 3(3x+4)^{2} \cdot (3x+4)'$$

$$= 2x(3x+4)^{3} + 9x^{2}(3x+4)^{2}$$

$$= x(3x+4)^{2}[2(3x+4)+9x]$$
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$$= x(3x+4)^{2}[2(3x+4)+9x]$$
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 $= x(3x+4)^{2}(15x+8)$

 $= 2(4x-1)^{2} [(4x-1)+12x]$

 $= 2(4x-1)^2(16x-1)$

(c)
$$y = x^{3}(1-2x)^{5}$$

$$\Rightarrow y' = (x^{3})'(1-2x)^{5} + x^{3} [(1-2x)^{5}]'$$

$$= 3x^{2} \cdot (1-2x)^{5} + x^{3} \cdot 5(1-2x)^{4} \cdot (1-2x)'$$

$$= 3x^{2} \cdot (1-2x)^{5} + x^{3} \cdot 5(1-2x)^{4} \cdot (-2)$$

$$= 3x^{2} \cdot (1-2x)^{5} + x^{3} \cdot 5(1-2x)^{4} \cdot (-2)$$

$$= 3x^{2} \cdot (1-2x)^{5} - 10x^{3}(1-2x)^{4}$$

$$= x^{2}(1-2x)^{4} [3(1 - 2x)^{4}]$$

$$= x^{2}(1-2x)^{4} (3-16x)$$

$$= x^{2}(1-2x)^{4} (3-16x)$$

(d)
$$y = x^4 (4 - 3x)^6$$

$$\Rightarrow y' = (x^4)^6 (4 - 3x)^6 + x^4 [(4 - 3x)^6]'$$

$$= 4x^3 (4 - 3x)^6 + x^4 \cdot 6(4 - 3x)^5 \cdot (4 - 3x)'$$

$$= 4x^3 (4 - 3x)^6 + x^4 \cdot 6(4 - 3x)^5 \cdot (-3)$$

$$= 4x^3 (4 - 3x)^6 - 18x^4 (4 - 3x)^5$$

$$= 2x^3 (4 - 3x)^5 [2(4 - 3x) - 9x]$$

$$= 2x^3 (4 - 3x)^5 (8 - 15x)^{ATHS}$$

7. (i)
$$y = 3x(2-x)^6$$

$$\Rightarrow y' = (3x)'(2^{1} + 3x)^6 + 3x [(2-x)^6]'$$

$$= 3(2-x)^6 + 3x \cdot 6(2-x)^5 \cdot (2-x)'$$

$$= 3(2-x)^6 + 3x \cdot 6(2-x)^5 \cdot (-1)$$

$$1^{1/2} = 3(2-x)^6 - 18x(2-x)^5$$

$$= 3(2-x)^5 [(2-x) - 6x]$$

$$= 3(2-x)^5 (2-7x)$$

(ii)
$$y' = 3(2-x)^5(2-7x) \Rightarrow y'(0) = 192$$

$$\Rightarrow m_T = 192, \quad m_N = -\frac{1}{192} \text{ at point } (0,0)$$

$$l_T : y = -\frac{1}{192}x$$

$$l_N : y = -\frac{1}{192}x$$

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Stage 2

1. (a)
$$y = \frac{u}{v}$$

$$\Rightarrow \frac{dy}{dx} = \frac{\frac{du}{dx} \times v - u \times \frac{dv}{dx}}{v^2}$$

$$= \frac{3 \times 2x + 5 - 3x + 4 \times 2}{(2x + 5)^2}$$

$$= \frac{6x + 15 - 6x + 8}{(2x + 5)^2}$$

$$= \frac{7}{(2x + 5)^2}$$

(b)
$$y = \frac{u}{v}$$
 Let $u = 7x - 2$ and $v = 1 - 4x$.

$$\Rightarrow \frac{dy}{dx} = \frac{u'v - uv'}{v^2 MATHS}$$

$$= \frac{\boxed{7 \times [1 - 4x] - [7x - 2] \times [-4]}}{\boxed{(1 - 4x)^2}}$$

$$= \frac{\boxed{7 - 28x} - \boxed{8 - 28x}}{\boxed{(1 - 4x)^2}}$$

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

$$= \frac{\boxed{-1}}{\boxed{(1 - 4x)^2}}$$
Let $u = 7x - 2$ and $v = 1 - 4x$.

2. (a)
$$\frac{dy}{dx} = \frac{u'v - uv'}{v^2}$$
$$= \frac{1 \times (x+2) - x \times 1}{(x+2)^2}$$
$$= \frac{2}{(x+2)^2}$$

Let
$$u = x$$
 and $v = x + 2$.
 $u' = 1$
 $v' = 1$

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(b) $\frac{dy}{dx} = \frac{u'v - uv'}{v^2}$ $= \frac{1 \times (x - 4) - (x + 4) \times 1}{(x - 4)^2}$ $= -\frac{88 \text{ MATHS}}{(x - 4)^2}$

Let u = x + 4 and v = x - 4. u' = 1v' = 1

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(c) $\frac{dy}{dx} = \frac{u'v - uv'}{tH^5v^2}$ $= \frac{3 \times (x+5) - 3x \times 1}{(x+5)^2}$ $= \frac{15}{(x+5)^2}$

Let u = 3x and v = x + 5. u' = 3v' = 1

(d) $\frac{dy}{dx} = \frac{u'v - uv'_1}{v^2} \text{MATHS}$ $= \frac{2 \times (4x - 1) - 2x \times 4}{(4x - 1)^2}$ $= -\frac{2}{(4x - 1)^2}$

Let u = 2x and v = 4x - 1. u' = 2v' = 4

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(e)
$$\frac{dy}{dx} = \frac{u'v - uv'}{v^2}$$

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

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

Let u=1+x and v=1-x. u'=1v'=-1

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(f)
$$\frac{dy}{dx} = \frac{u'v - uv'}{v^2}$$
$$= \frac{1 \times (3x+1) - (x+5) \times 3}{(3x+1)^2}$$
$$= -\frac{14^{MATHS}}{(3x+1)^2}$$

Let u = x + 5 and v = 3x + 1. u' = 1v' = 3

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(g) $\frac{dy}{dx} = \frac{u'v - uv'}{tH^{S}v^{2}}$ $= \frac{7 \times (1 - 2x) - (7x + 3) \times (-2)}{(1 - 2x)^{2}}$ $= \frac{13}{(1 - 2x)^{2}}$

Let u = 7x + 3 and v = 1 - 2x. u' = 7v' = -2

(h) $\frac{dy}{dx} = \frac{u'v - uy'_{B}}{v^{2}} \stackrel{\text{MATHS}}{=} \frac{2 \times (5 - 3x) - (2x - 9) \times (-3)}{(5 - 3x)^{2}}$ $= -\frac{17}{(5 - 3x)^{2}}$

Let u = 2x - 9 and v = 5 - 3x. u' = 2v' = -3

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(j)
$$\frac{dy}{dx} = \frac{u'v - uv'}{v^2}$$

$$= \frac{4 \times (4 - 5x) - (4x - 5) \times (-5)}{(4 - 5x)^2}$$
Let $u = 4x - 5$ and $v = 4 - 5x$.
$$u' = 4$$

$$v' = -5$$

$$= -\frac{9}{(4 - 5x)^2}$$

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3. (a)
$$y' = \frac{u'v - uv'}{v^2}$$

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

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

$$= \frac{2x^2 + 2x - x^2}{12 \text{ MATHS}}$$

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

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

$$\Rightarrow y' = \frac{x(x+2)}{(x+1)^2}$$

$$\therefore y' = \frac{x(x+2)}{(x+1)^2}$$

$$\text{Let } y' = 0 \implies \frac{x(x+2)}{(x+1)^2} = 0$$

$$\Rightarrow x = 0, x = -2$$

$$\Rightarrow x = 0, x = -2$$

$$\Rightarrow x = 0, x = -2$$

(b)
$$y' = \frac{u'v - uv'}{v^2}$$

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

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

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

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

$$\therefore y' = -\frac{1 + x^2}{(x^2 - 1)^2}$$

$$\therefore y' = -\frac{1 + x^2}{(x^2 - 1)^2}$$

$$\Rightarrow 1 + x^2 = 0$$

$$\Rightarrow \text{no solutions for } x$$

(c) $y' = \frac{u'v - uv'}{v^2}$

$$= \frac{u'v - uv'}{v^2}$$

Let
$$y' = 0 \Rightarrow \frac{2x(1-x)}{(1-2x)^2} = 0$$

$$\Rightarrow 2x(1-x) = 0$$

$$\Rightarrow x = 0, x = 1$$

$$\text{JB MATHS}$$

(d)
$$y' = \frac{u'v - uv'}{v^2}$$

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

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

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

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

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Let
$$y' = 0$$
 $\Rightarrow \frac{-x^2 + 2x + 1}{(x^2 + 4)^2} = 0$
 $\Rightarrow x^2 - 2x \stackrel{\text{IF}}{=} 1 \stackrel{\text{ATHS}}{=} 0$
 $\Rightarrow x = \frac{2 \pm \sqrt{4 + 4}}{2}$
 $\Rightarrow x = 1 + \sqrt{2}, x = 1 - \sqrt{2}$

(e)
$$y' = \frac{u'v - uv'}{v^2}$$

$$= \frac{\left(x^2 - 3\right)' \cdot \left(x^2 + 4\right) - \left(x^2 - 3\right) \cdot \left(x^2 + 4\right)^{\frac{16}{5}}}{\left(x^2 + 4\right)^2}$$

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

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

$$= \frac{14x}{(x^2 + 4)^2}$$

$$\therefore y' = \frac{14x}{(x^2 + 4)^2}$$

$$\text{JB MATHS}$$

$$\text{Let } y' = 0 \implies \frac{14x}{(x^2 + 4)^2} = 0$$

$$\implies 14x = 0 \text{ JB MATHS}$$

$$\implies x = 0$$

(f)
$$y' = \frac{u'v - uv'}{v^2}$$

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

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

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

$$\therefore y' = \frac{x^2 + 4x + 1}{(x + 2)^2}$$

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Let
$$y' = 0 \Rightarrow \frac{x^2 + 4x + 1}{(x+2)^2} = 0$$

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$$\Rightarrow x^2 + 4x + 1 = 0$$

$$\Rightarrow x = \frac{-4 \pm \sqrt{16 - 4}}{2}$$

$$\Rightarrow x = -2 + \sqrt{3}, \quad x = -2 - \sqrt[3]{3}$$

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(g)
$$y' = \frac{u'v - uv'}{v^2}$$

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

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

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

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

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

Let $y' = 0$

$$\Rightarrow 4x = 0$$

$$\Rightarrow x = 0$$

$$\Rightarrow x = 0$$

(h) $y' = \frac{u'v - uv'}{v^2}$

E MATHS

(h) $y' = \frac{u'v - uv'}{v^2}$

(h)
$$y' = \frac{|u'v' - uv'|}{v^2}$$

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

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

$$= \frac{2x}{(x^2 - 2)^2 \text{B MATHS}}$$

$$\therefore y' = \frac{2x}{(x^2 - 2)^2}$$

Let
$$y' = 0 \Rightarrow \frac{2x}{(x^2 - 2)^2} = 0$$

$$\Rightarrow 2x = 0$$

$$\Rightarrow x = 0$$

4. (a)
$$y = \frac{1}{1-x} = (1-x)^{-1}$$

$$\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx} \qquad \text{(Let } u = 1-x \text{ and } y = u^{-1}\text{)}$$

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

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

$$y' = \frac{u'v - uv'}{v^2}$$

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

$$= \frac{0 \cdot (1-x) - 1 \cdot (-1)}{(1-x)^2}$$

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

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

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

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

$$\therefore y' = \frac{1}{(1-x)^2}$$

$$\therefore y' = \frac{1}{(1-x)^2}$$

$$\Rightarrow \text{IB MATHS}$$

$$\Rightarrow y' = \frac{1}{(1-x)^2}$$

$$\Rightarrow \frac{1}{(1-$$

 $=-\frac{5}{(5x-4)^2}$

(b)
$$y = \frac{1}{5x - 4}$$
 $y' = \frac{u'v - uv'}{v^2}$
 $JE \text{ MATHS}$
 $= \frac{(1)' \cdot (5x - 4) - 1 \cdot (5x - 4)'}{(5x - 4)^2}$
 $= \frac{0 \cdot (5x - 4) - 1 \cdot 5}{(5x - 4)^2}$
 $JE \text{ MATHS}$
 $JE \text{ MATHS}$