



Questions

The Chain Rule

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Q1) Use the chain rule to find the derivative of the following functions.

a) $f(x) = (x + 4)^3$

d) $f(x) = 4(x + 2)^{-2}$

b) $f(x) = 3(x + 1)^5$

e) $f(x) = 5 + (x - 2)^4$

c) $f(x) = (x - 2)^{-3}$

f) $f(x) = 6x^2 - 2(x - 4)^3$

Q2) Use the chain rule to find the derivative of the following functions.

a) $f(x) = (3x + 2)^3$

d) $g(x) = 2(1 - 3x)^2$

b) $y = 2(2x - 5)^6$

e) $y = \left(\frac{1}{2}x + 3\right)^4$

c) $f(x) = (4x - 3)^{-2}$

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

Q3) Use the chain rule to find the derivative of the following functions.

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

c) $g(x) = \sqrt{(2 - 4x)^3}$

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

d) $h(x) = \sqrt[4]{\left(\frac{1}{2}x^2 - 5\right)^3}$

Q4) Rearrange the function to a form which the chain rule can be used on then find the derivative.

a) $f(x) = \frac{1}{(x + 2)^3}$

c) $y = \frac{1}{4(x - 3)}$

b) $g(x) = \frac{3}{x - 2}$

d) $f(x) = \sqrt{(2x + 3)}$