حمدانو انو

السؤال الاول:

1) Using the first principles method, find the derivative of the function: $f(x)= 3x^2+4$ at $x=2$

2) An object is dropped from aheight of 64 feet. The height of falling t seconds after release, is given by $g(t)= 64- 16t^2$ feet.

a)Find the average rate of change between $t=1.5$, $t=2$

b) Calculate the gradient of the tangent $g'(t)$ at $t= 3$

c) Find the equation of the tangent at $t =3$

3) Applying the chain rule , find $\frac{dy}{dx}$ if $y = 2(5-3x^4)^{-2}$

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السؤال الثاني:

اولا:

Differentiate each of these expressions with respect to agiven variable

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

2) $\frac{d}{dt}\left(3t^{\pi}-\frac{2}{t}+\sqrt{4-t}\right)$

3) $\frac{dy}{dz}$, $y=\frac{4z^2-z+3}{\sqrt{z}}$

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

ثانيا:

Assume that **f** & **g** are differentiable with

$$f(0)=1, f'(0)=-1, f(1)=2, f'(1)=3$$

$$g(1)=2, g'(1)=-2, g(0)=1, g'(0)=-3$$

a) if $h(x)=x^2 f(x)$ Find $h'(1)$

b) If $h(x)=\frac{3}{g(x)}$ Find $h'(0)$

مجلس أبو ظبي للتعليم
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calculas test

للصف الحادي عشر العلمي
الرياضيات

السؤال الثالث:

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Find an antiderivative of each function:

1) $\int\left(\frac{x+e}{2x+2e}\right)dx$

2) $\int(\frac{x^{-3}}{3}+x)dx$

3) $\int 2x\left(4-x^2+\sqrt{x}\right)dx$

4) $\int\frac{(2x^2-1)^2}{2x^2}dx$

5) $3\int\frac{d}{dx}\left(1-\sqrt{x}\right)dx$