Calculus
Lecture 4

Oktay Olmez and Serhan Varma

Rules for Derivative

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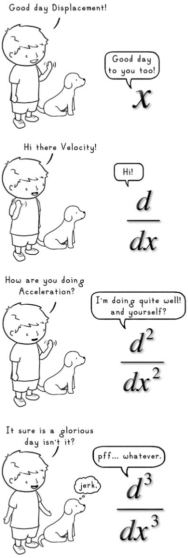
or

$$\frac{dy}{dx} = \frac{dy}{du}\frac{du}{dx}$$

Higher order derivatives



Example

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An object moves along a horizontal coordinate line in a such a way that its position at time t is specified by

$$s(t) = t^3 - 12t^2 + 36t - 30.$$

- *When is the velocity is 0?*
- *When is the velocity is positive?*
- *When is the object moving left?*
- *When is the acceleration is positive?*

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An object thrown directly upward is at the height of $s(t) = -16t^2 + 48t + 256$ *feet after t seconds.*

- *When is its initial velocity?*
- *When does it reach its maximum height ?*
- *With what speed does it hit the ground?*