

Unit 9 (Chapter 11): Limits

11.1 Limits and Motion: The Tangent Problem

Target 9E: Use and apply the limit definition of the derivative

*Review of Prior Concepts*If $f(x) = 2x^2 - 2$, find:

a) $f(-1)$

b) $f(a)$

c) $f(x + h)$

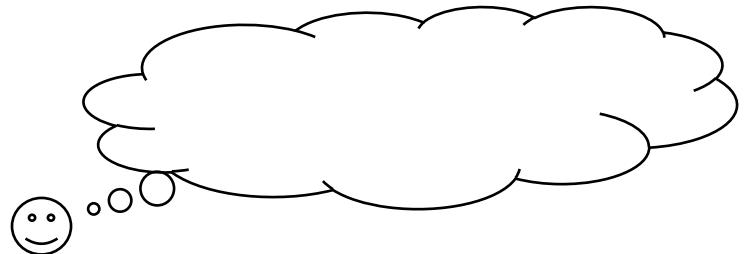
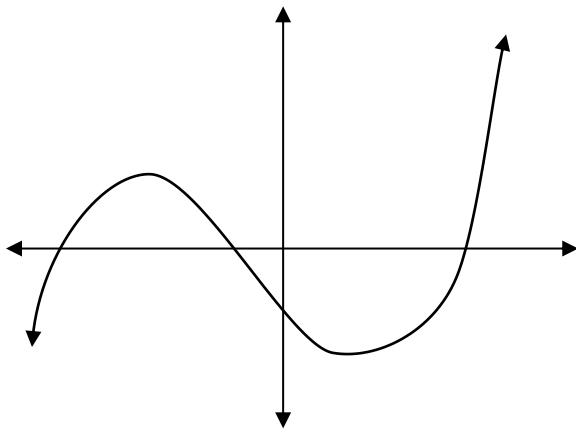
d) $\frac{f(x+h)-f(x)}{h}$

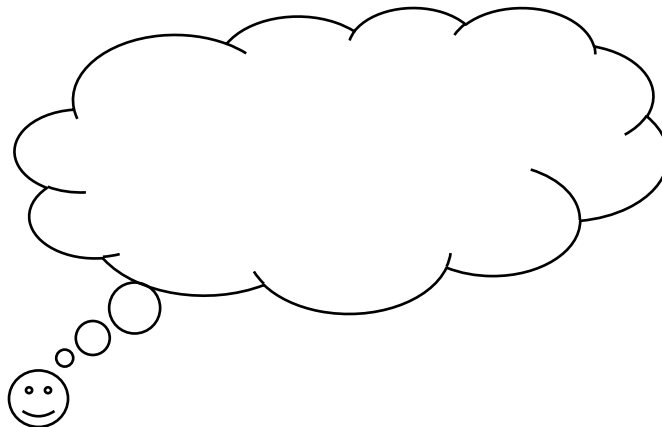
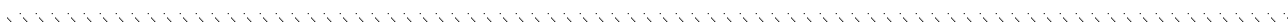
More Practice

Evaluating Functions

<http://www.mathsisfun.com/algebra/functions-evaluating.html>https://www.khanacademy.org/math/algebra/algebra-functions/evaluating-functions/e/functions_1<http://www.coolmath.com/algebra/15-functions/08-the-difference-quotient-01><https://youtu.be/E9YEUQR9NAU><https://youtu.be/1O5NEI8UuHM>

The Tangent Problem





Examples:

1. Find the instantaneous rate of change @ $x = 2$ for $f(x) = 3x^2 - 2x + 1$.

2. Find the derivative of $f(x) = 8x - 4$.

3. Find $f'(x)$ for $f(x) = \sqrt{x}$.

More Practice

The Tangent Line

<http://clas.sa.ucsb.edu/staff/lee/secant,%20tangent,%20and%20derivatives.htm>

http://tutorial.math.lamar.edu/Classes/CalcI/Tangents_Rates.aspx

<https://youtu.be/qPOUPXlfEWU>

<https://youtu.be/uI9QLZGqV1A>

<https://youtu.be/ydHzk5zWd4I>

Homework Assignment

p.762 #3,7,9,11,23,25,29

p.762 #12,13,24,26,28,31