# UNIT 1

## STATION V – RATES OF CHANGE

**4.2 Students demonstrate an understanding of the interpretation of the derivative as an instantaneous rate of change. ~~Students can use derivatives~~**

# LEVEL 1

**Complete the sentences below.**

1. The _____ rate of change between two points represents the secant line of the function connecting those points.

2. The _____ rate of change of a point represents the _____ line of the function at that point.

# LEVEL 2

**Finish the following calculations of the IRC.**

1) $\lim_{h\to 0} \dfrac{\left(-\frac{5}{2}+h\right)^2 - \left(-\frac{5}{2}\right)^2}{h}$

2) $\lim_{h\to 0} \dfrac{\left(\frac{3}{2}+h\right)^3 - \left(\frac{3}{2}\right)^3}{h}$

# LEVEL 3

**For each expression, find the (1) average rate of change for the given interval (2) the instantaneous rate of change and 3) the equation of the secant line!**

**1. $x^2 + 2x + 1$ [0, 3]**

**2. $2x^2$ [-2, 3]**

**3. $\dfrac{1}{x+4}$ [-2, 2]**