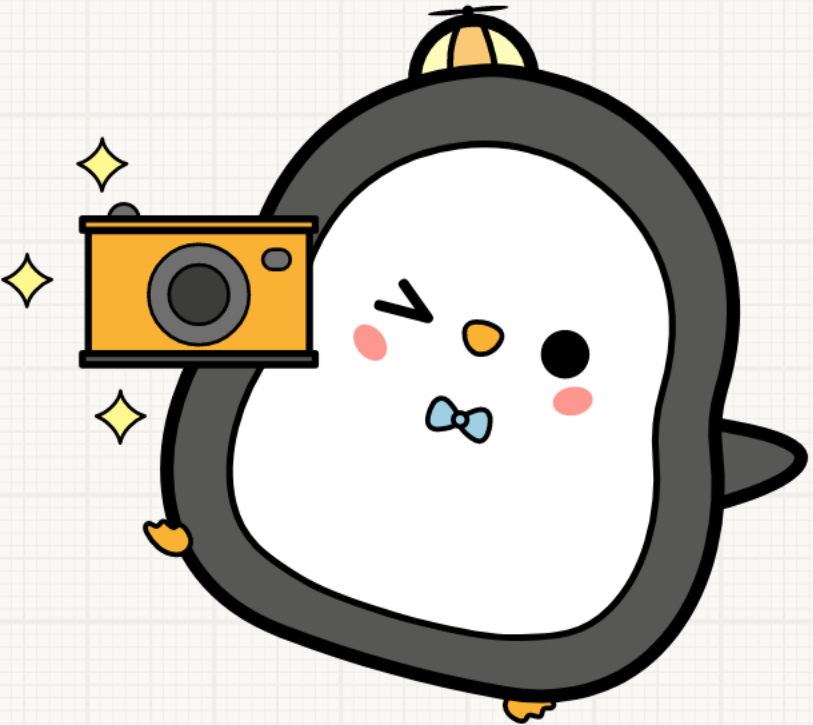
AP Bio Math Mondays

Rate and Growth: Rate

NOTES

Rate

$$\frac{dy}{dt}$$

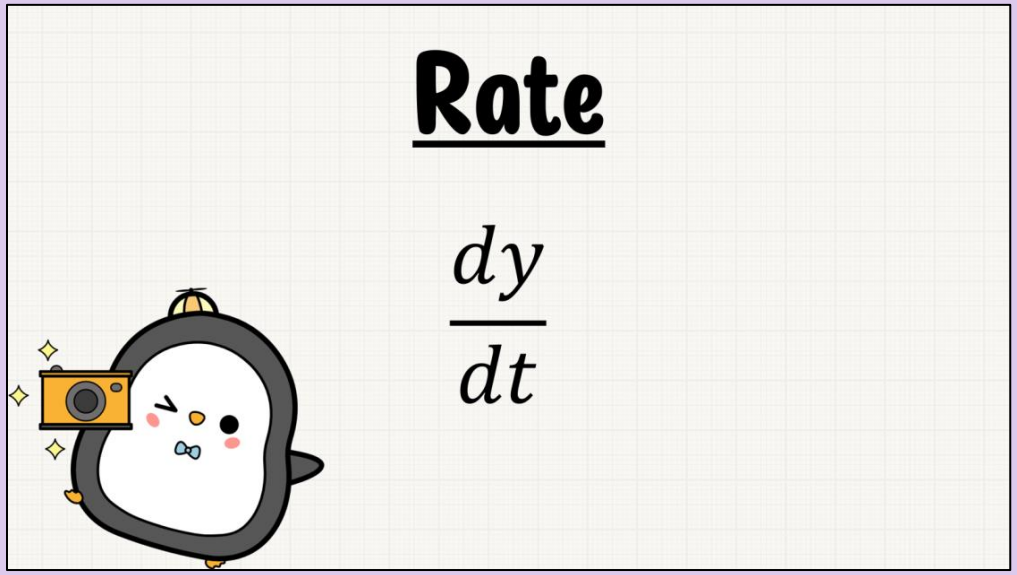


Math Monday #3

Rate

Hydrogen peroxide is broken down to water and oxygen by the enzyme catalase. The following data were taken over 5 minutes. What is the rate of enzymatic reaction in mL/min from 2 to 4 minutes? Round to the nearest hundredth.

Time (min)	Amount of O_2 produced (mL)
1	2.5
2	3.1
3	4.3
4	5.7
5	5.9



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$$\frac{dy}{dt} = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$

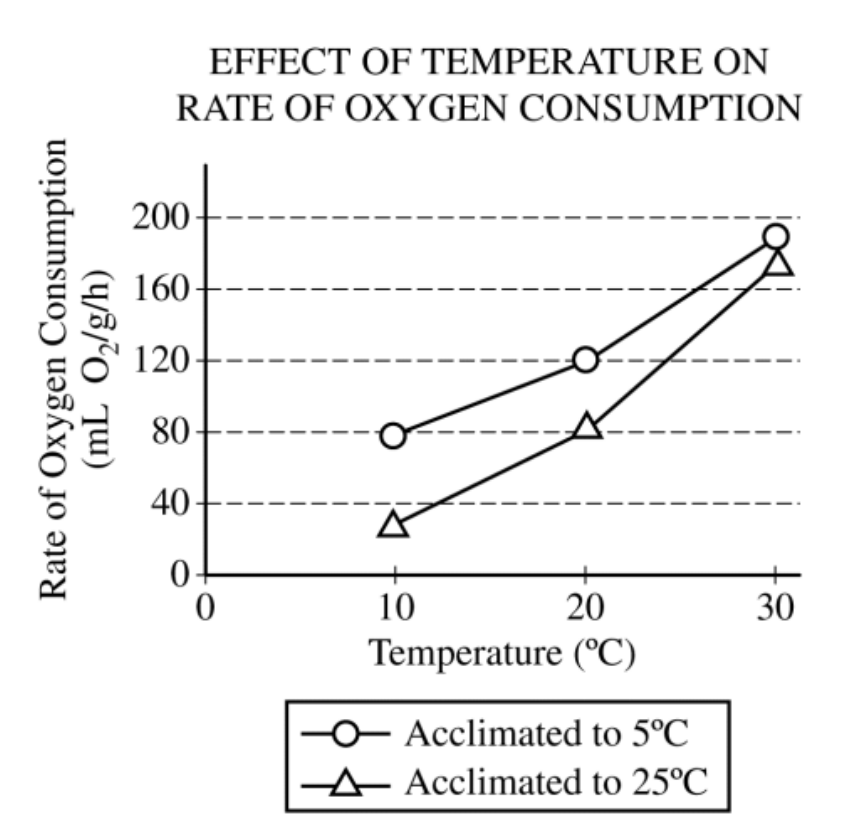
$$\frac{dy}{dt} = \frac{(5.7 - 3.1)}{(4 - 2)}$$

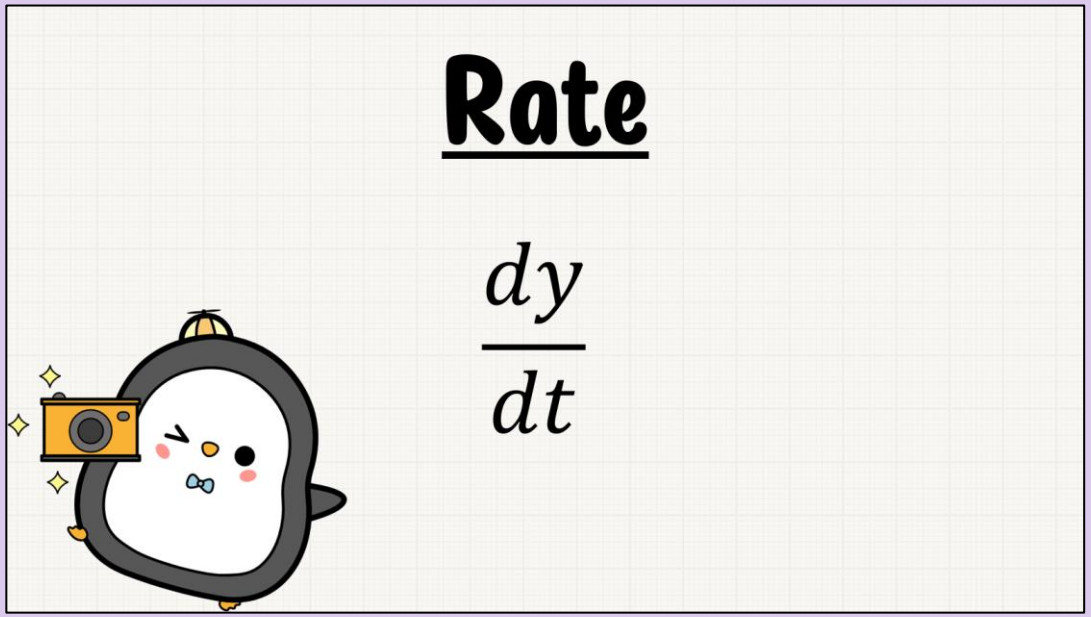
$$\frac{dy}{dt} = \frac{(2.6)}{(2)} = 1.30$$

Example Problem

Rate

Based on the data shown, calculate the average rate of increase in oxygen consumption for animals acclimated to 5°C as the temperature increases from 10°C to 30°C. Give the answer in mL O_2/g/h/°C to the nearest tenth.





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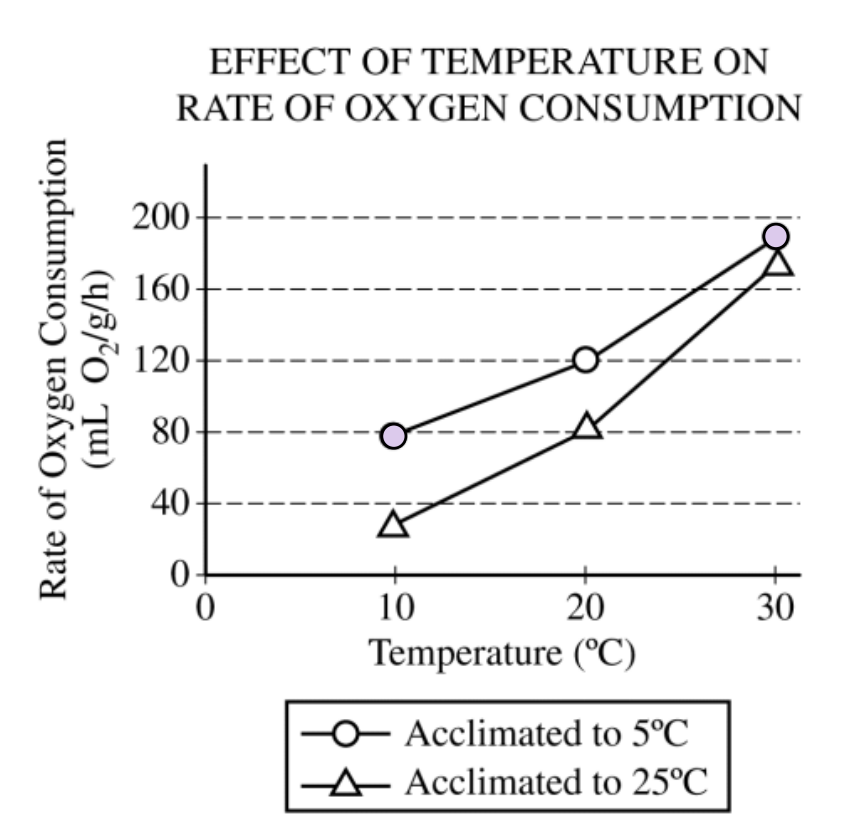

$$\frac{dy}{dt} = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$

$$\frac{dy}{dt} = \frac{(190 - 80)}{(30 - 10)}$$

$$\frac{dy}{dt} = \frac{(110)}{(20)} = 5.5$$