

4.10.1 Sinusoidal Swing Lab

Hypotheses: **answer these right now**

1. The shorter the pendulum, the _____ the period.
longer / shorter
2. The greater the displacement from rest, the _____ the amplitude.
greater / smaller

Analysis (to be completed when 4.10.2 is complete) ****Don't forget to answer these****

N.B.

Calculations (You must confirm your coordinates with your teacher each time, BEFORE doing the analysis.)

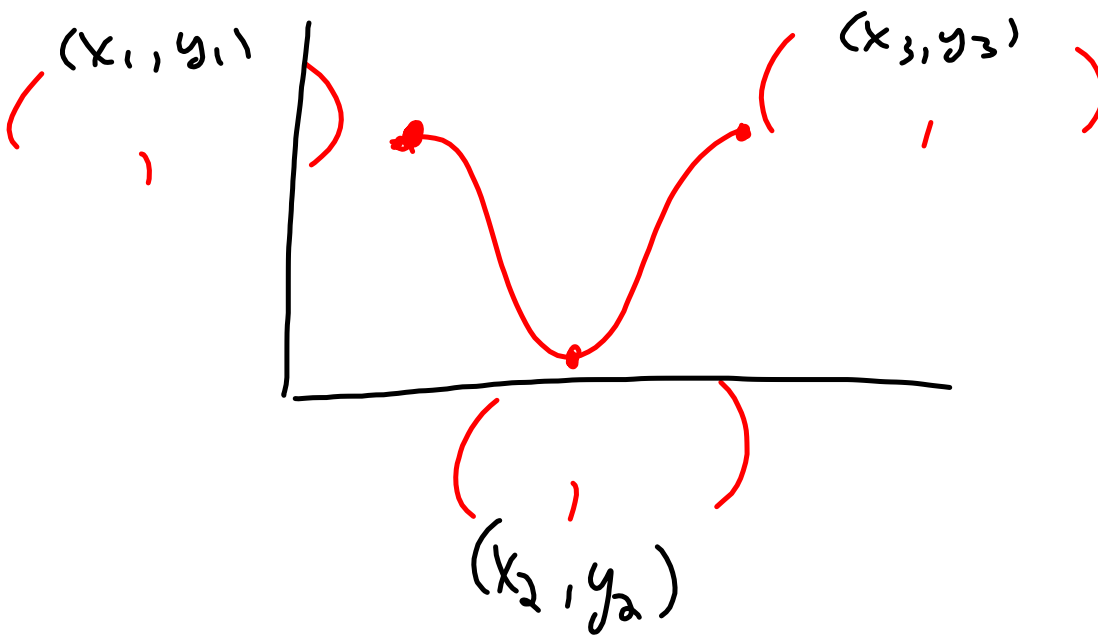
NOTE: Round each (x_1, y_1) to 3 decimals; i.e. (2.652, 0.514)

Reminders:

(You must confirm your coordinates with your teacher each time, BEFORE doing the analysis.)

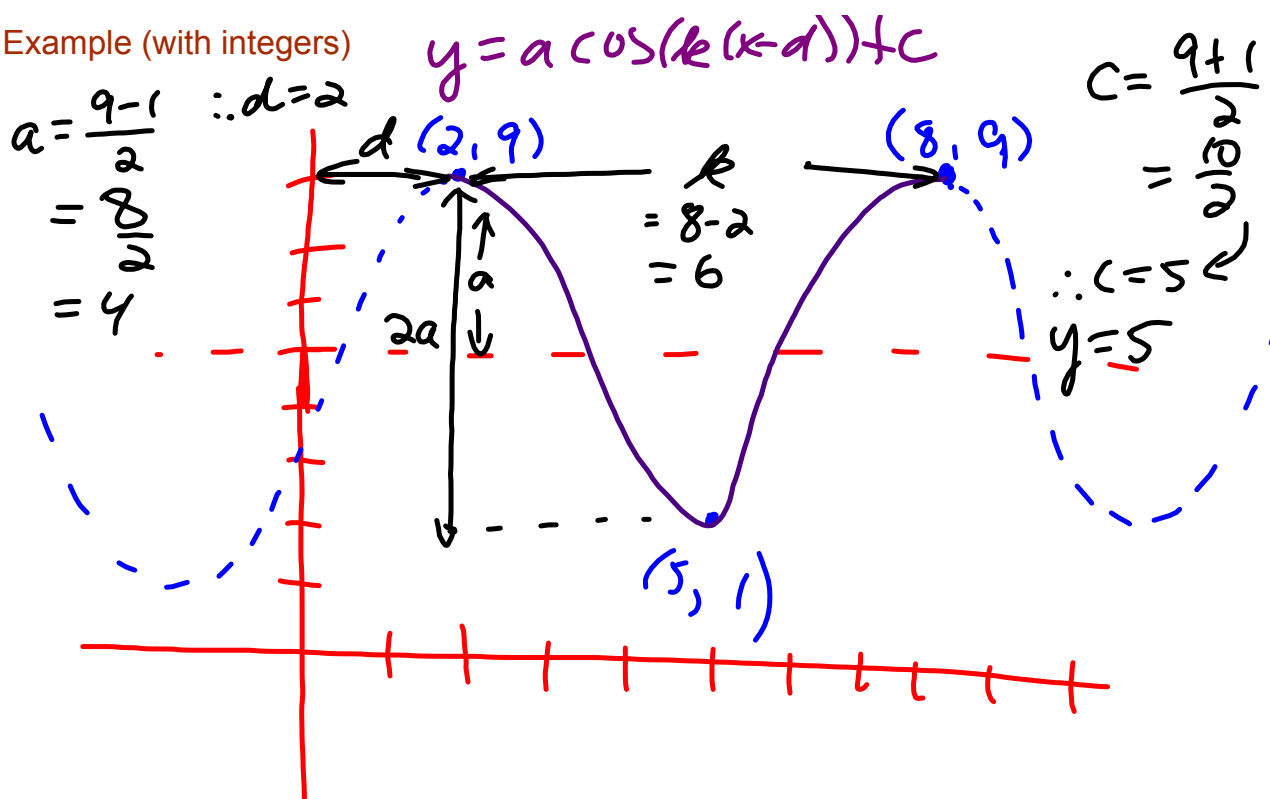
Round each (x_1, y_1) to 3 decimals; i.e. (2.652, 0.514)

Basic Set for each "Swing"



Complete the "Example (with integers)" on next slide before revealing formulae.

Example (with integers)



$$a = \frac{y_1 - y_2}{2}$$

You may use y_3
instead of y_1

$$k = \frac{360^\circ}{x_3 - x_1}$$

$$= \frac{360^\circ}{8-2}$$

$$= \frac{360}{6}$$

$$= 60$$

$$d = x_1$$

$$c = \frac{y_1 + y_2}{2}$$

You may use y_3
instead of y_1

$$\therefore y = 4 \cos(60(x-2)) + 5$$

is an equation for the graph above.