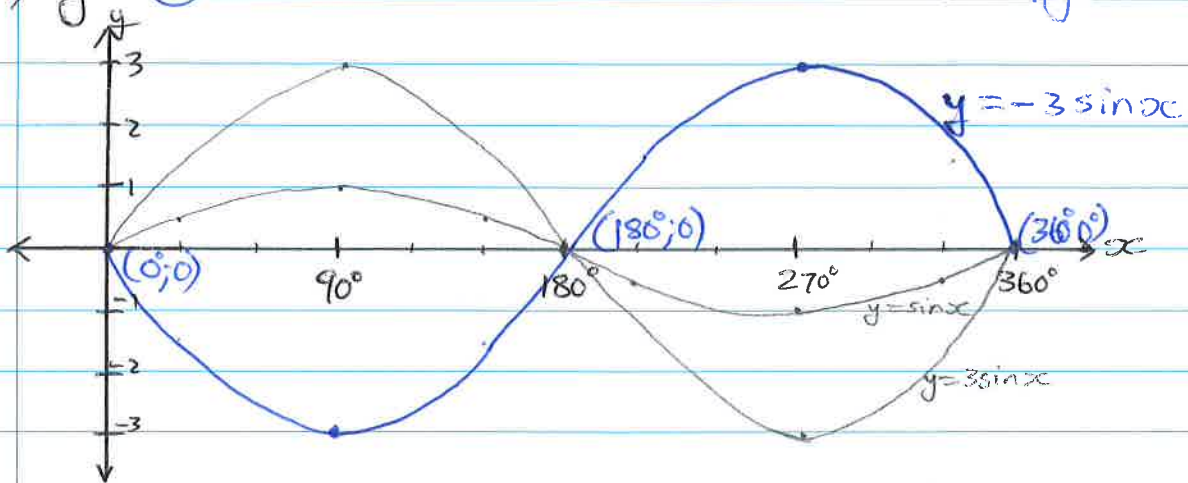


Exercise 1

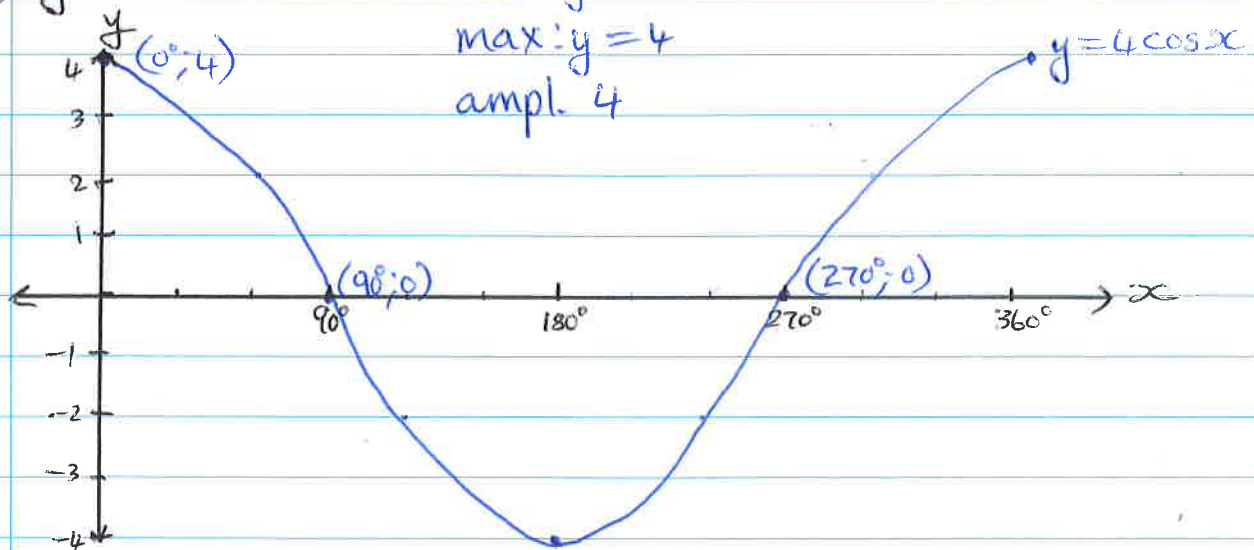
i) a) $y = -3\sin x$ Reflection

ampl. 3
Max: $y = 3$
Min: $y = -3$



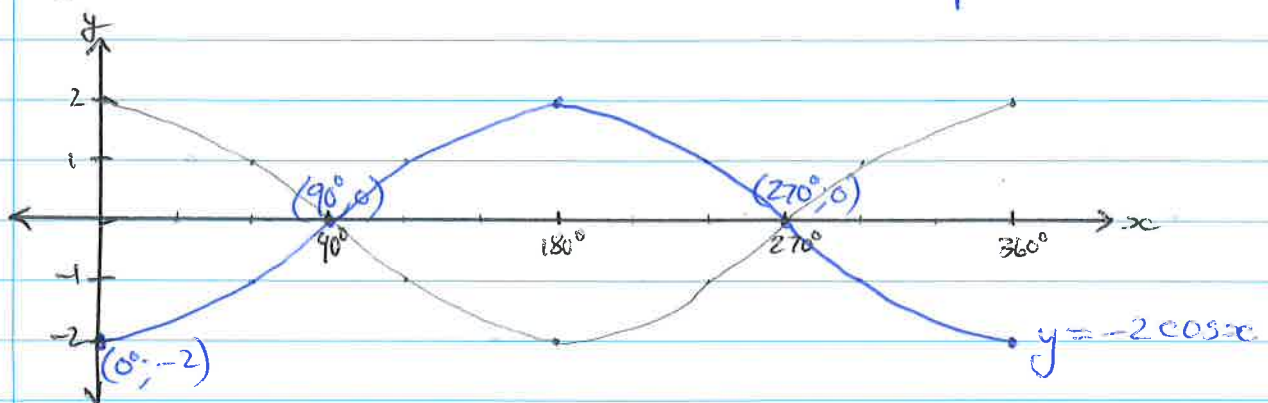
b) $y = 4\cos x$

min: $y = -4$
max: $y = 4$
ampl. 4



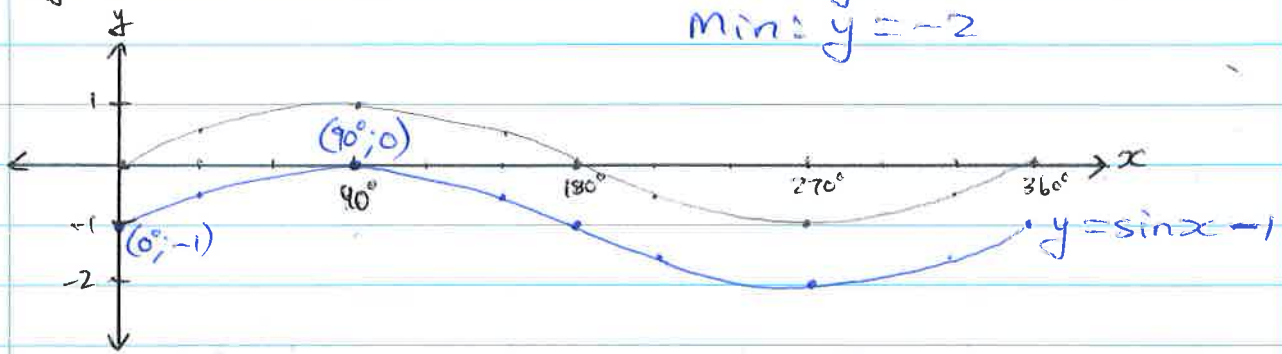
c) $y = -2\cos x$

max: $y = 2$ min: $y = -2$
ampl. 2



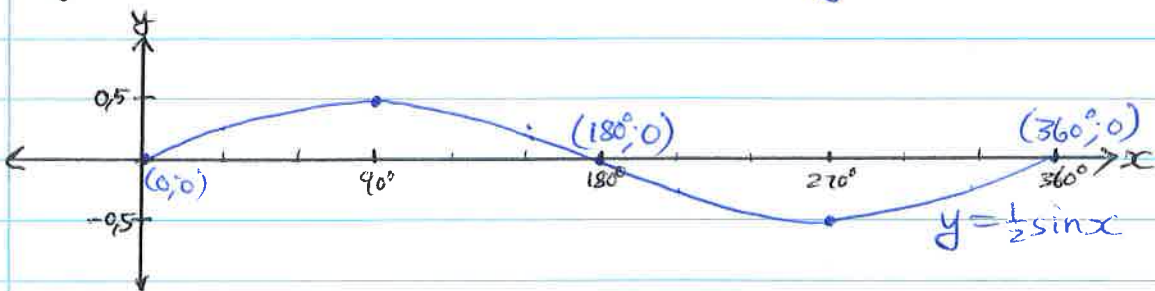
d) $y = \sin x - 1$

Max: $y = 0$ ampl. 1
Min: $y = -2$



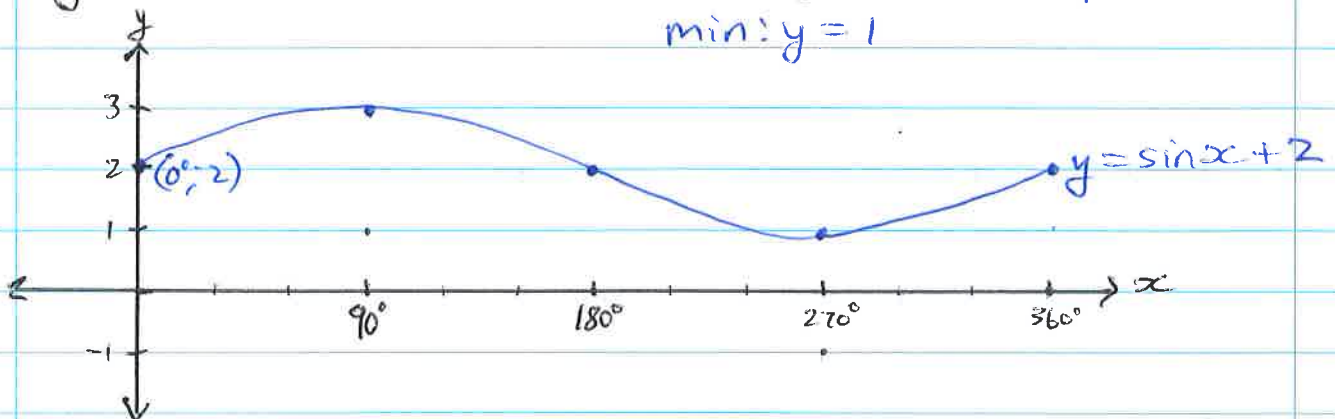
e) $y = \frac{1}{2} \sin x$

Max: $y = \frac{1}{2}$ ampl. $\frac{1}{2}$
Min: $y = -\frac{1}{2}$



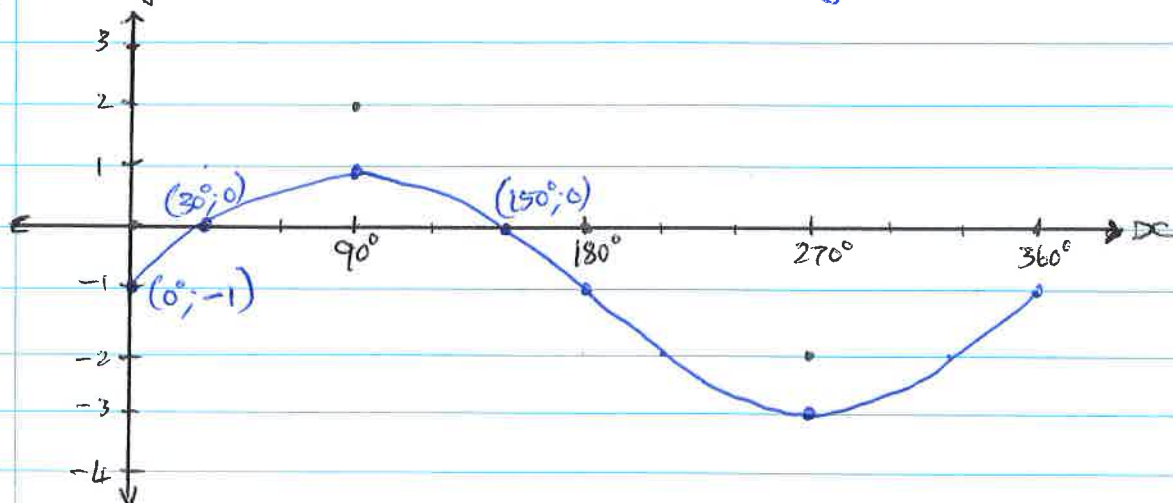
f) $y = \sin x + 2$

Max: $y = 3$ ampl. 1
Min: $y = 1$



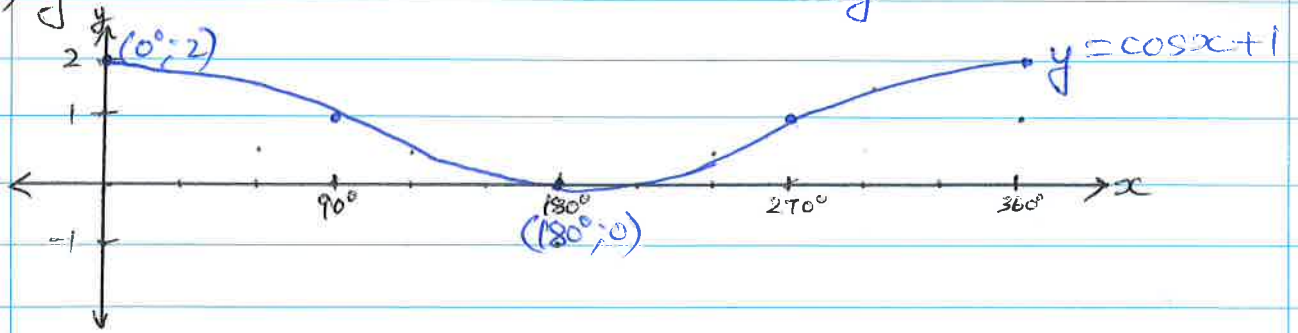
g) $y = 2 \sin x - 1$

Max: $y = 1$ ampl. 2
Min: $y = -3$

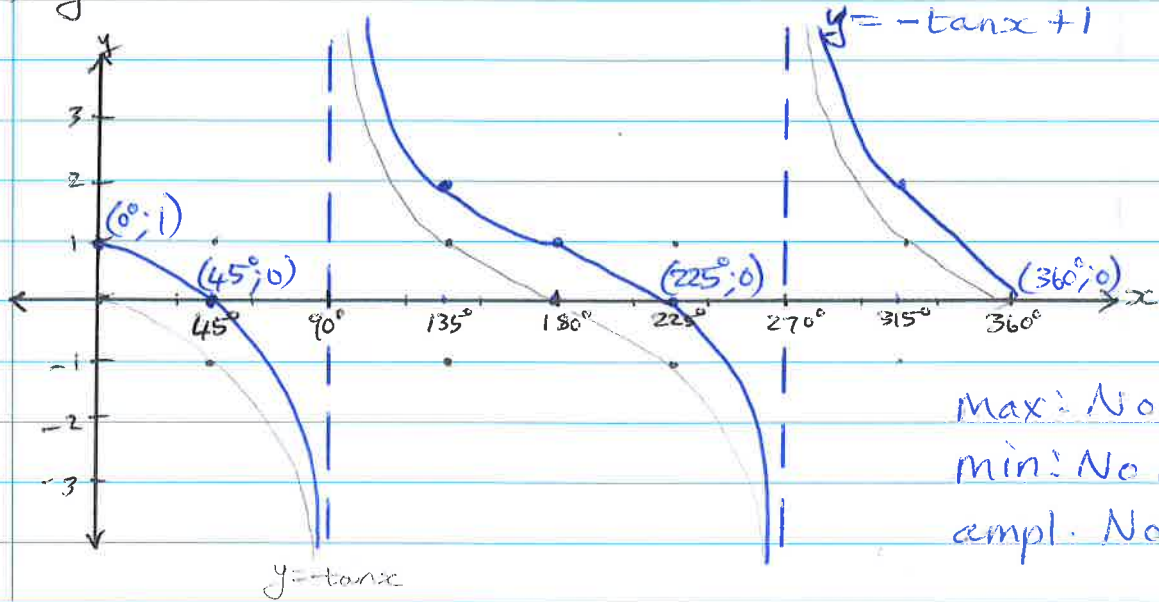


h) $y = \cos x + 1$

max: $y = 2$ ampl. 1
min: $y = 0$



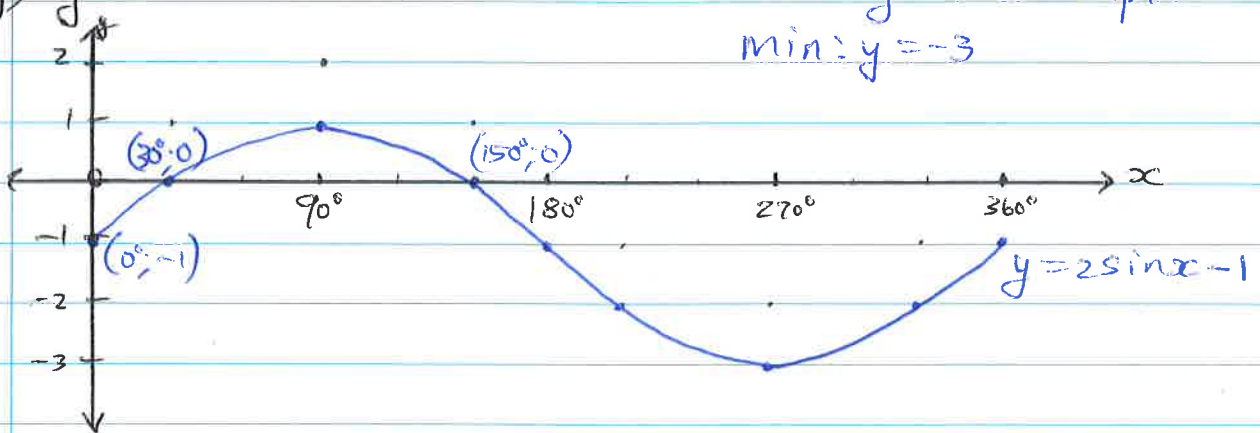
i) $y = -\tan x + 1$



Max: No max
min: No min
ampl. No ampl.

j) $y = 2 \sin x - 1$

max: $y = 1$ ampl. 2
min: $y = -3$

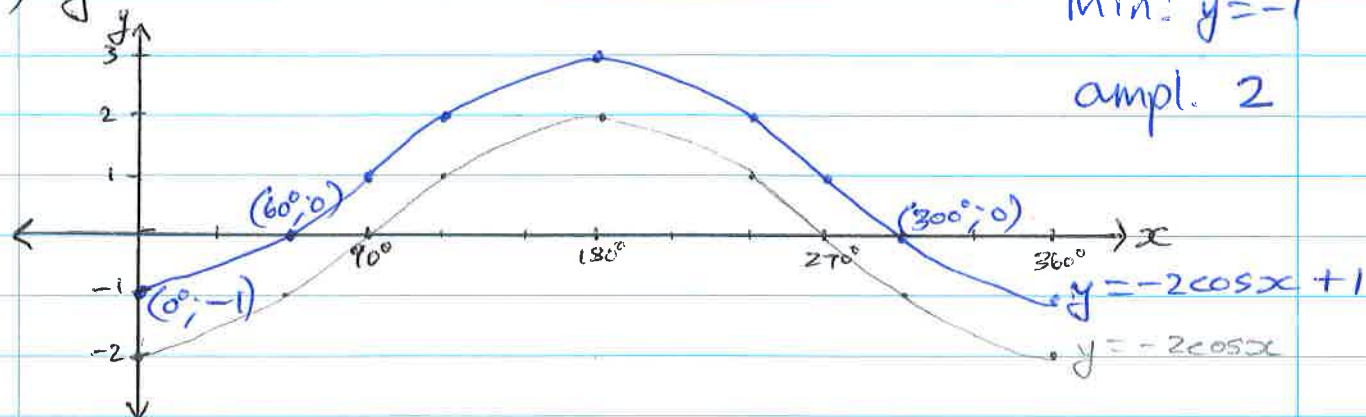


k) $y = 1 - 2 \cos x \rightarrow y = -2 \cos x + 1$

max: $y = 3$

min: $y = -1$

ampl. 2



2) a) $f(x) = -2 \sin x + 2$

↳ Reflected; ampl. of 2; 2 units up

$g(x) = 3 \cos x$

↳ ampl. of 3

b) f : max: $y = 4$ min: $y = 0$

g : max: $y = 3$ min: $y = -3$

c) f : amplitude: 2

g : amplitude: 3

* d) $f(180^\circ) - g(180^\circ) = 5$ units

* e) (1) $g(x) \geq 0$ $0^\circ \leq x \leq 90^\circ$

(2) $g(x) < 0$ $90^\circ < x < 270^\circ$

(3) $g(x) > 0$ $0^\circ < x < 90^\circ$

(4) $f(x) = g(x)$ $x = 90^\circ$

(5) $f(x) > g(x)$ $90^\circ < x < 270^\circ$

(6) $f(x) = 0$ $x = 90^\circ$

(7) $g(x) = -3$ $x = 180^\circ$

(8) $f(x) - g(x) = 4$ $x = 270^\circ$