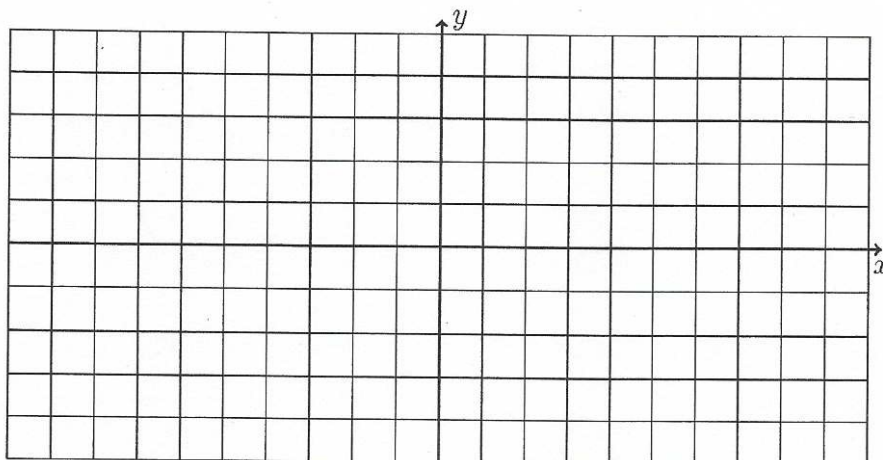


- (1) Find the amplitude, frequency and phase shift for $y = -3 \cos(2x + \pi/4)$, and draw a careful graph of the function.



- (2) A ferris wheel has a radius of 11m and the bottom of the wheel passes 1m above the ground. If the ferris wheel makes one complete revolution every 20s, find an equation that gives the height above the ground of a person on the ferris wheel as a function of time, assuming at $t = 0$ person starts at bottom (i.e. height 1m). (Hint: draw pictures).

- (3) Find exact values for:

(a) $\cos^{-1}(-1/2)$

(b) $\sin^{-1}(\sqrt{2}/2)$

(c) $\tan^{-1}(1)$

(d) $\sin^{-1}(\sin(\pi/6))$

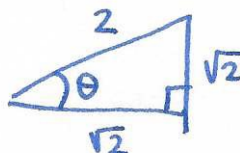
(e) $\cos^{-1}(\cos(-\pi/6))$

(f) $\tan^{-1}(\tan(7\pi/6))$

(g) $\cos(\sin^{-1}(\sqrt{2}/2))$

(h) $\tan(\sin^{-1}(\sqrt{2}/2))$

g) $\cos \theta = \sin^{-1}(\frac{\sqrt{2}}{2}) \Leftrightarrow \sin \theta = \frac{\sqrt{2}}{2}$



$\cos \theta = \frac{\sqrt{2}}{2}$

h) $\tan \theta = \frac{\sqrt{2}}{\sqrt{2}} = 1$