

Question 12**(6 marks)**

The horizontal displacement of a Ferris wheel cabin exhibits simple harmonic motion. The maximum horizontal speed is $\frac{\pi}{2}$ metres per second and its period of motion is exactly 60 seconds.

Let $x(t) = A\cos(nt)$ be the horizontal displacement after t seconds.

(a) Determine the values of A and n .

(3 marks)

- (d) What is the probability that another sample of size $2n$ would produce a sample mean that differs from μ by more than \$50? (3 marks)