① Given points:

$(110, 69)$; $(172, 86)$

$m = \dfrac{\Delta y}{\Delta x} = \dfrac{86-69}{172-110} = \dfrac{17}{62}$

$y = \dfrac{17}{62}x + b$

$86 = \dfrac{17}{62}(172) + b$; $b \approx \dfrac{1204}{31}$

$T(N) = \dfrac{17}{62}x + \dfrac{1204}{31}$

Then at 154 chins $T(154) \approx 81.1$

② $f(t) = -16t^2 + 64t$; $t(-16t+64) = 0$

give at 0 and 4

midpoint b/w 0 & 4 = 2

$f(2) = -16(2)^2 + 64(2) = 64$

given time: ft and sec

④ Find the equation:

$f(x) = A\sin(Bx)$

$A = 5$ because amplitude = 5

$P(18\pi, 0)$; $0 = 5\sin(18\pi B)$

$\sin^{-1}(0) = 18\pi B$ then

$\dfrac{2\pi}{18\pi} = B$; $B = \dfrac{1}{9}$;

$f(x) = 5\sin\left(\dfrac{1}{9}x\right)$

⑤ Find equation:

$f(x) = A\cos(Bx) + C$

$A = 4$ highest $-$ lowest $/2 = 8/2 = $ ④

$C = 6$ ∵ middle $+$ lowest $= 4 + 2 = $ ⑥

Period is 2π then

$f(x) = -4\cos(x) + 6$

⑥ Find equation: $P(0, 24)$

$f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

given points: $-2m2$ & $2m1$

$f(x) = A(x+2)^2(x-2)$

$24 = A(2)^2(-2)$; $24 = -8A$;

then $A = -3$

$f(x) = -3(x+2)^2(x-2)$

⑦ matching the graph: Basic

and ⑧ matching graph

③ Find frequency & amplitude:

$f(x) = 5_3\cos(6\pi wt)$

where amplitude: 5_3

and frequency: $3w$