Name:
Group 1
Result:

1. *(7 points)*

The temperature in an industrial fridge is given by the equation:

$$T(t) = 3 - 0.5 \sin\left(\frac{\pi}{15}t\right)$$

where T is temperature measured in $°C$ and t is time measured in minutes since the thermostat is turned on.

a) Sketch the graph of T for $0 \leq t \leq 60$.

b) State the maximum temperature in the fridge and t at which it occurs for the first time.

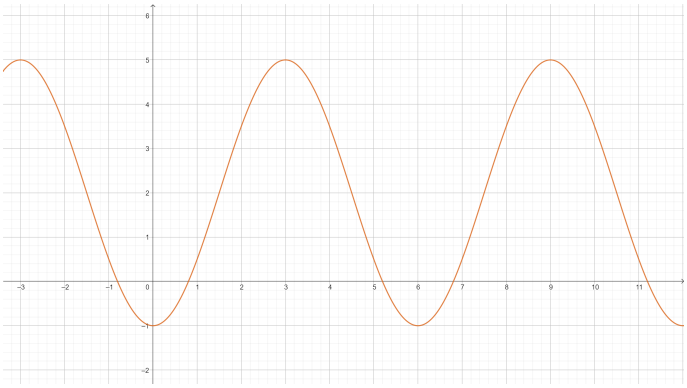
c) Find the temperature in the fridge 2 minutes after the thermostat is turned on.

d) Calculate how long during the first 60 minutes will the temperature in the fridge be below $3.1°C$.

2. *(6 points)*

Find the constants A, B, C and D (where appropriate) given the graphs of the functions:

a) $g(x) = A\cos(Bx) + D$



Minimum at $(0, -1)$, maximum at $(3, 5)$.

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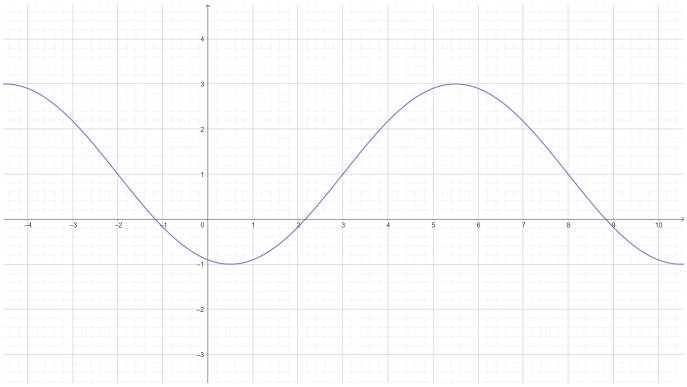
b) $h(x) = A\sin(B(x - C)) + D$



Minimum at $(0.5, -1)$, maximum at $(5.5, 3)$.