Question:
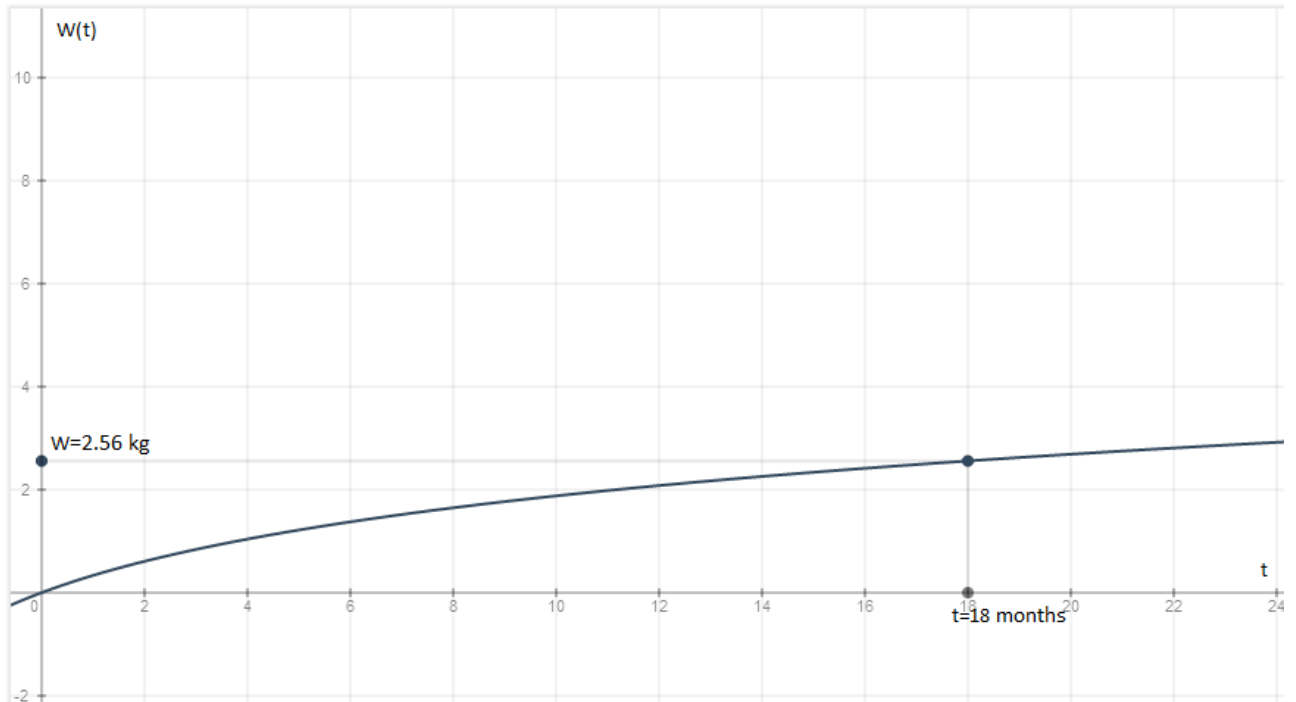
W(t) = 1.5 ln ((t/4)+1) where t ≥ 0 and W(t) is the mean weight of a lobster in kg after t months.
a) draw this function so as to depict the mean weight of a lobster over 2 years of its growth
b) Graphically determine the time taken, in months, for the mean weight of a lobster to reach 2.56kg. Check the answer using an algebraic approach

Solution:

a)

b)

So, as we can see the time taken, in months, for the mean weight of a lobster to reach 2.56kg is 18 month. And let's show it using an algebraic approach.

$$2.56 = 1.5 \ln(\frac{t}{4} + 1)$$

$$1.71 = \ln(\frac{t}{4} + 1)$$

$$e^{1.71} = \frac{t}{4} + 1$$

$$e^{1.71} - 1 = \frac{t}{4}$$

$$t = 4e^{1.71} - 4 \approx 18$$

Answer:
    c) t= 18 month