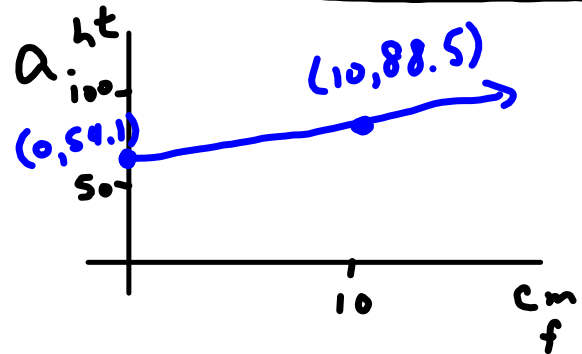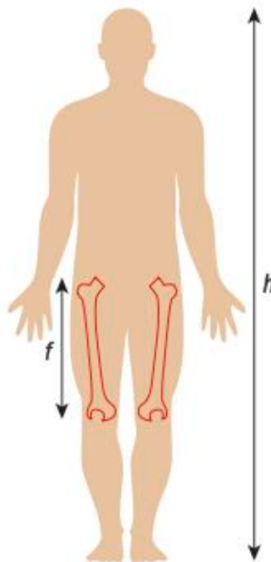1 a A plumber charges $40 for a service call plus $21 an hour. Write a function that represents this situation and define the variables you used.

b State a reasonable domain and range for this situation.

c How much will have you have to pay the plumber if he is at your house for four hours?

a. $C(x) = 21x + 40$

$x \rightarrow$ # hours

$C(x) \rightarrow$ cost for the # of hours

b. $D: [0, \infty)$
$R: [0, \infty)$

c. $C(4) = 21(4) + 40$
$\boxed{C(4) = 124}$

2 Forensic scientists can determine the height of a person based on the length of their femur. The equation is $h(f) = 2.47f + 54.10$, where f is the length of the femur (cm) and h is the person's height (cm).

a Use your GDC to sketch a graph of this function. Label the axes.

b State a reasonable domain and range for this function.

c Determine the height of a person with femur length of 51 cm.

d If someone is 161 cm tall, what is the length of their femur?

a.
(0, 54.1) (10, 88.5)

b. $D: [0, 100]$ (VARIES)
$R: [0, 300]$

c. $h(51) = 2.47(51) + 54.1$
$h(51) = 180.07$ cm.

d. $161 = 2.47f + 54.1$
$106.9 = 2.47f$
$\boxed{f = 43.3 \text{ cm}}$