

7. A bakery makes pies.

On any day, the total cost to the bakery, £ $y$ , of making  $x$  pies is modelled to be the sum of two separate elements:

- a fixed cost,  $C$ ,
- a cost that is proportional to the number of pies that are made that day,  $K$ .

(a) Write down a general equation linking  $y$  with  $x$ , for this model. (1)

The pies are sold for £5 each.

On a day when 650 pies are made and sold, the bakery makes a profit of £200.

On a day when 230 pies are made and sold, the bakery makes a loss of £80.

Using the above information,

(b) Rewrite your answer to part (a), giving the values of the constants  $C$  and  $K$  as simplified fractions. (3)

(c) With reference to the model, interpret the significance of the value for the gradient in the equation derived above. (1)

Assuming that each pie is sold on the day it is made,

(d) find the least number of pies that must be made on any given day for the bakery to make a profit that day. (2)

**(Total for Question 7 is 7 marks)**