Piecewise Functions

The following function $\quad C(q): \begin{cases} = 3q + 55, & 0 \leq q < 500 \\ = 2q + 500, & 500 \leq q \leq 2000 \end{cases}$

describes the cost, $C(q)$, in dollars, of purchasing a quantity, q, of t-shirts from a manufacturer.

a) What would it cost to purchase 100 t-shirts?

b) What would it cost to purchase 499 t-shirts?

c) What would it cost to purchase 500 t-shirts?

d) Would it be cheaper to place two orders of 400 t-shirts or one order of 800 t-shirts?

How much cheaper?

The following function $C(n) : \begin{cases} = 0.28, & n \in]0, 40[\\ = 0.22, & n \in [40, 100[\\ = 0.15, & n \in [100, \infty[\end{cases}$

describes the cost **per** photo, $C(n)$, in dollars, of printing n digital pictures at Uniprix.

a) What would it cost to print 10 pictures?

b) What would it cost to print 39 pictures?

c) What would it cost to print 40 pictures?

d) What would it cost to print 100 pictures?

e) Would it be cheaper to print 2 sets of 50 pictures or one set of 100 pictures?
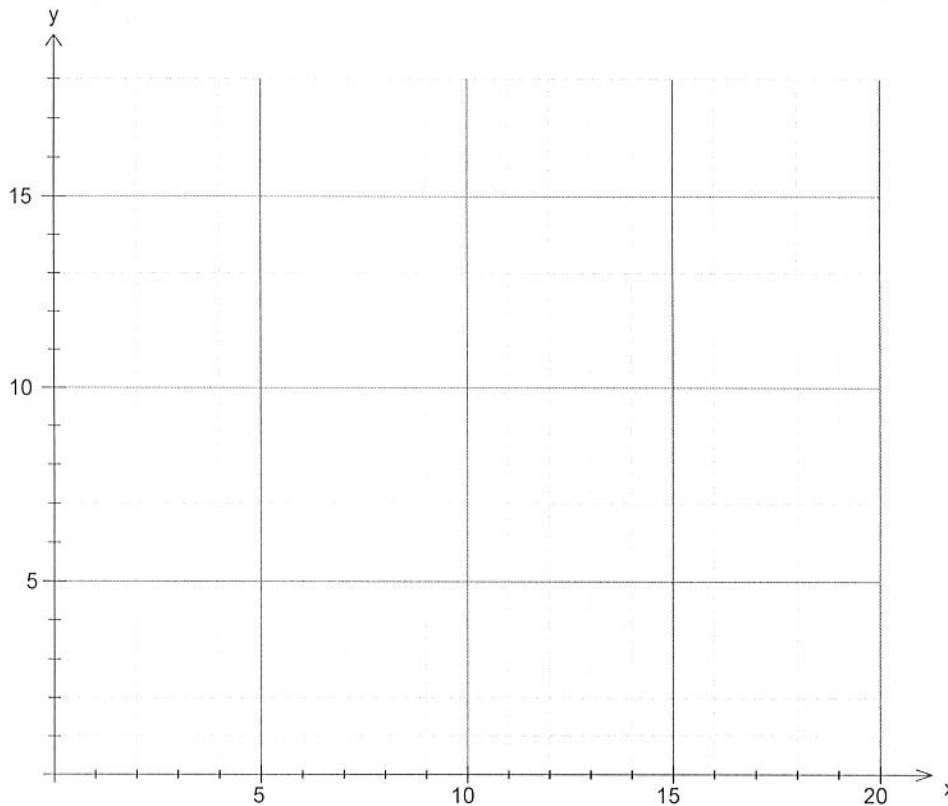
Explain why.

Piecewise Practice

Math 4 CST

1. The following piecewise function represents the value of a stock as recorded over the past 20 months. *f(x)* represents the value of the stock (in dollars) and *x* is the number of months since its value has been recorded.

$$f(x): \begin{cases} = \dfrac{1}{2}x + 12, & 0 \le x < 6 \\[2mm] = 3x - 15, & 6 \le x < 10 \\[2mm] = 11, & 10 \le x \le 20 \end{cases}$$

a) Graph the function below

b) What was the value of the stock at first (when x=0)? $_____

c) What was the value of the stock at 5 months (when x=5)? $_____

d) What was the value of the stock at 6 months (when x=6)? $_____

e) What was the value of the stock at 9 months (when x=9)? $_____

f) What was the value of the stock at 10 months? (when x=10) $_____

g) What was the value of the stock at 15 months? (when x=15) $_____

h) When was the stock at a minimum value?   _____

i) When was the stock worth $12 or more?   _____

j) When was the value of the stock constant?   _____