Mathematics 122

Quiz # 1 Quiz 1 Name: Key

You must show your work to get full credit.

1. It costs 40$ plus 15¢ a mile to rent a car. Give a formula for the cost in dollars, C, of renting a car for a day and driving it d miles.

$C(d) =$ $40 + .15d$ dollars

2. The variable A is given by as a function of r by the table

r	0	5	10	20
A	10	25	40	70
	①	②	③	

$\frac{\Delta A}{\Delta r}$ at ① $= \frac{25-10}{5-0} = \frac{15}{5} = 3$

$\frac{\Delta A}{\Delta r}$ at ② $= \frac{40-25}{10-5} = \frac{15}{5} = 3$

$\frac{\Delta A}{\Delta r}$ at ③ $= \frac{70-40}{20-10} = \frac{30}{10} = 30$

(a) Explain why this can be a linear function. (Your explanation should contain some calculations and at least one English sentence.)

The table is linear because the slopes $\frac{\Delta A}{\Delta r}$ are constant.

(b) Give a formula for A as a function of r.

$A(r) =$ $10 + 3r$

$\frac{\Delta A}{\Delta r} = \frac{A-10}{r-0} = 3$

so $A - 10 = 3r$

$A = 10 + 3r$