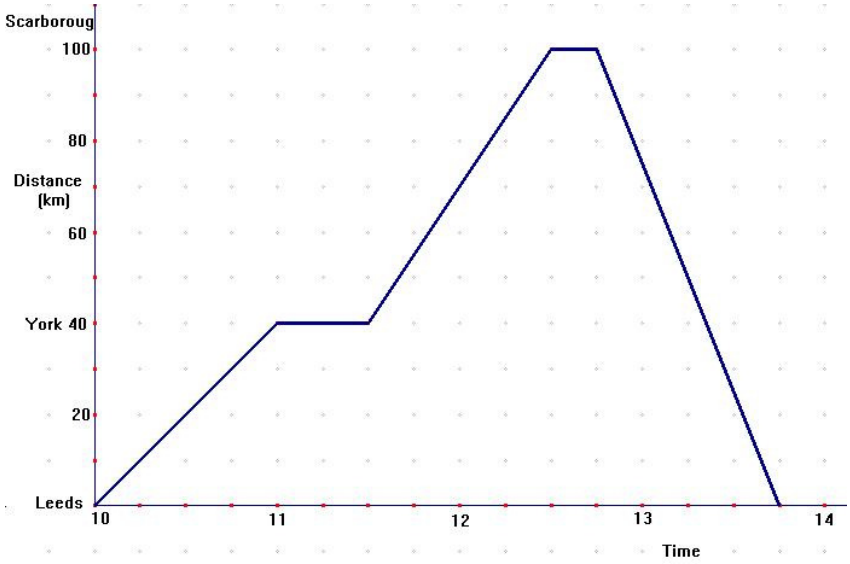
FUNCTIONS

1. The graph shows a return journey by car from Leeds to Scarborough.



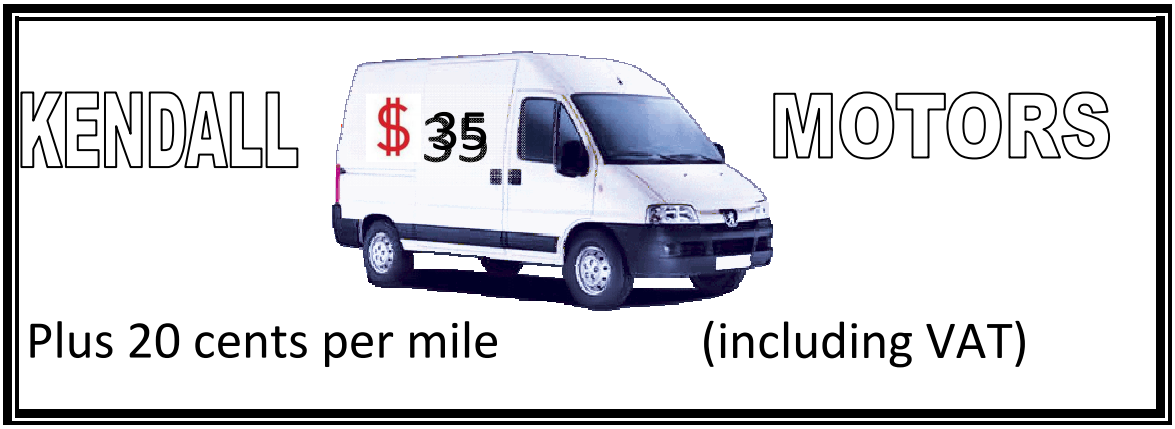
   a) How far is it from Leeds to York?
   b) How far is it from York to Scarborough?
   c) At which two places does the car stop?
   d) How long does the car stop at Scarborough?
   e) When does the car
      - arrive in York?
      - arrive back in Leeds?
   f) What is the speed of the car
      - from Leeds to York?
      - from York to Scarborough?
      - from Scarborough to Leeds?

2. Solve by graphing and using another method the simultaneous equation.

$$\left.\begin{aligned} x - y &= 2 \\ 3x + y &= 2 \end{aligned}\right\}$$

3. Find the equation of the line which
   a) passes through (0,7) at a slope of 3
   b) passes through (2,-5) at a slope of 2
   c) passes through (1,4) at a slope of -1
   d) passes through (2,3) at a slope of $\frac{-2}{3}$
   e) passes through (2,1) and (4, 5)
   f) passes through (0,5) and (3,2)

4. Kendal Motors hires out vans.



Copy and complete the table where x is the number of miles travelled and C is the total cost in pounds.

x	0	50	100	150	200	250	300
C	35			65			95

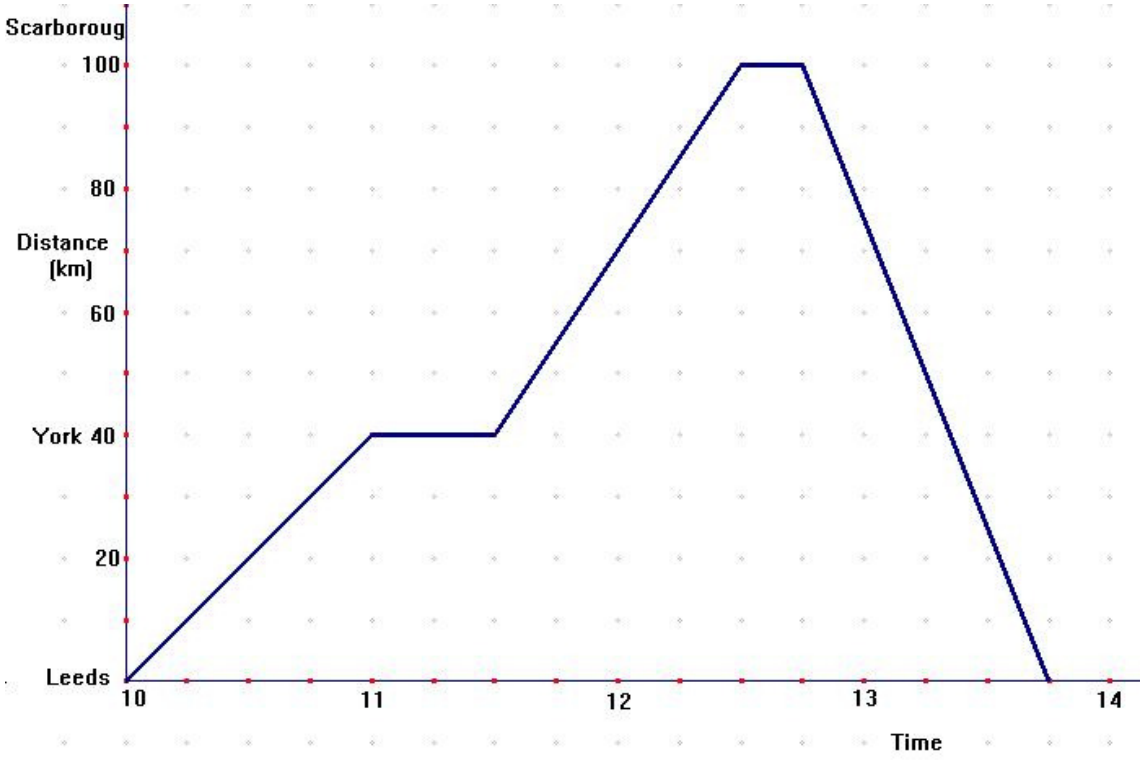
Draw a graph of C against x.

a) Use the graph to find the number of miles travelled when the total cost was $71.

b) What is the formula connecting C and x?

SOLUTION

1. The graph shows a return journey by car from Leeds to Scarborough.



a) How far is it from Leeds to York? 40 km

b) How far is it from York to Scarborough? 60 km

c) At which two places does the car stop? At York and Scarborough

d) How long does the car stop at Scarborough? 15 minutes

e) When does the car

i. arrive in York? At 11

ii. arrive back in Leeds? At 13:45

f) What is the speed of the car

iii. from Leeds to York? 40 km/h

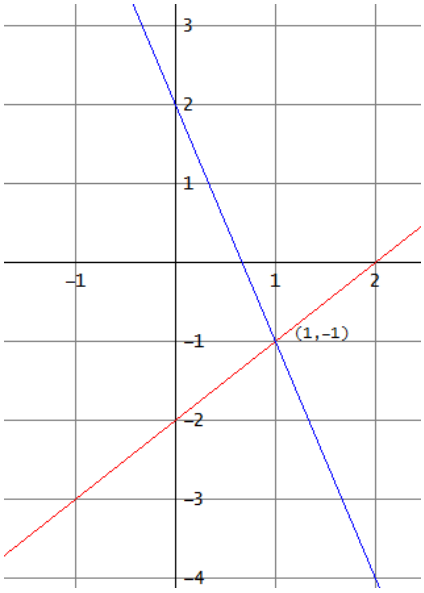
iv. from York to Scarborough? 60 km/h

v. from Scarborough to Leeds? 100 km/h

2. Solve by graphing and using another method the simultaneous equation.

$$\left.\begin{array}{l} x-y=2 \\ 3x+y=2 \end{array}\right\} \rightarrow y=x-2 \Rightarrow 3x+x-2=2 \rightarrow x=1 \rightarrow y=1-2=-1$$

$$\left.\begin{matrix} x-y=2 \\ 3x+y=2 \end{matrix}\right\} \rightarrow \begin{cases} y=x-2 \\ y=2-3x \end{cases}$$



3. Find the equation of the line which

a) passes through (0,7) at a slope of $3 \rightarrow y-7=3x \rightarrow y=3x+7$

b) passes through (2,-5) at a slope of $2 \rightarrow y+5=2(x-2) \rightarrow y=2x-9$

c) passes through (1,4) at a slope of $-1 \rightarrow y-4=-(x-1) \rightarrow y=-x+5$

d) passes through (2,3) at a slope of $\frac{-2}{3} \rightarrow y-3=-\frac{2}{3}(x-2) \rightarrow y=-\frac{2}{3}x+\frac{11}{3}$

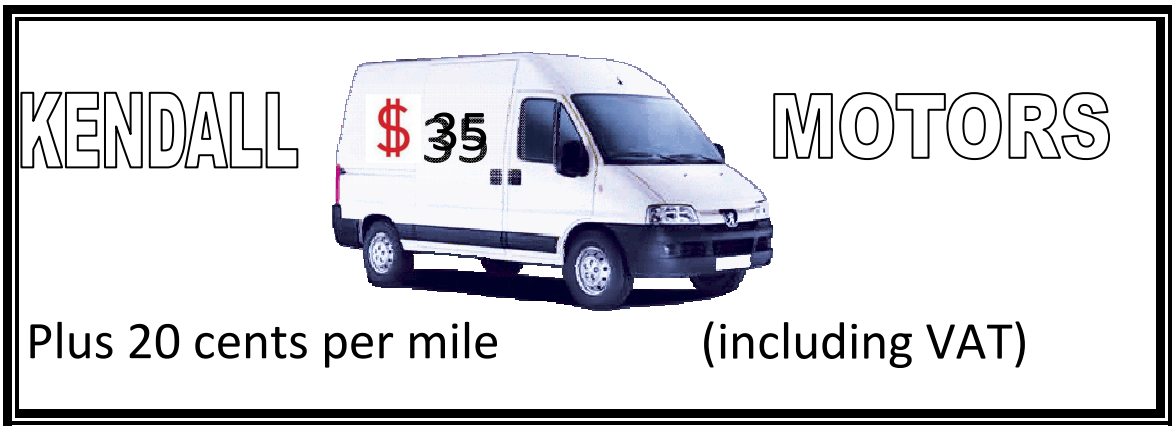
e) passes through (2,1) and (4, 5) $\rightarrow m=\frac{5-1}{4-2}=2$

$y-1=2(x-2) \rightarrow y=2x-3$

f) passes through (0,5) and (3,2) $\rightarrow m=\frac{2-5}{3-0}=-1$

$y-5=-1(x-0) \rightarrow y=-x+5$

4. Kendal Motors hires out vans.



Copy and complete the table where x is the number of miles travelled and C is the total cost in pounds.

x	0	50	100	150	200	250	300
C	35	45	55	65	75	85	95

Draw a graph of C against x.

a) Use the graph to find the number of miles travelled when the total cost was \$71. 180 miles

b) What is the formula connecting C and x? $y = 35 + 0.20x$