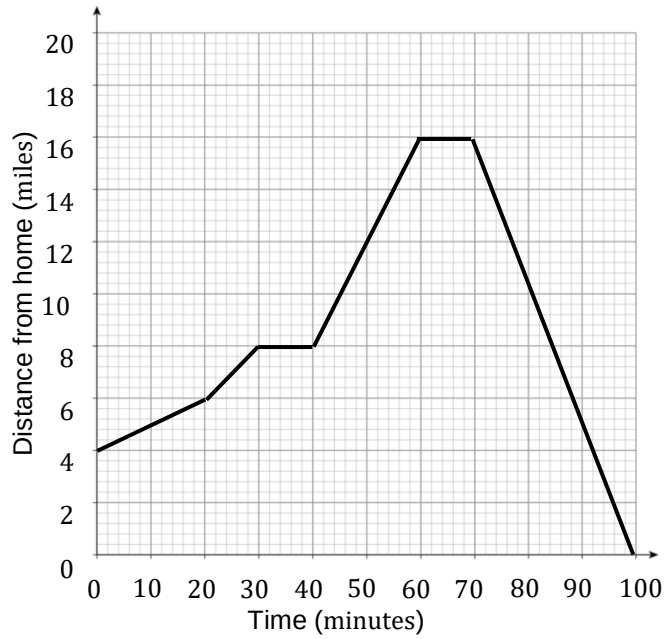
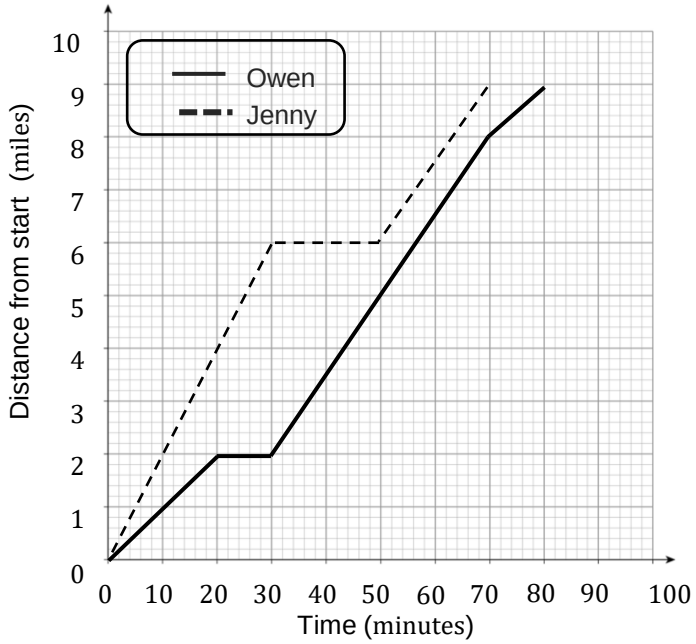
Distance Time Graphs Mark Scheme		
1	Charlie leaves home at $09:00$ and then stops 6 miles from home.	[1] Distance travelled
	He stops for 2 hours, then walks at an average speed of 4 mph, until $13:00$.	[1] Speed calculated
	He stops for 1 hour, then walks backwards at $14:00$.	[1] Direction mentioned
	From $15:00$ to $17:00$ he walked forwards 3 miles before walking back 3 miles but at twice the speed	[1] Correct comment about final part of the journey / correct calculation for speed
2(a)	Same distance travelled by both Katherine and Julia	[1]
2(b)	6 mph	[1]
2(c)	2 hours 30 minutes	[1] Accept 2.5 hours
3(a)	$14 + 6 + 12 = 32$ km	[1]
3(b)	Straight line back to her start point	[1]
	The line should meet the x-axis at $10:40$	[1]
4	60 mph for 10 mins 10 min rest 4 miles in 20 mins 6 miles in 10 mins 20 min rest	[1] mark for highest speed [1] for both rest times noted [1] for any other correct description
	Total distance covered $= 40$ miles	[1] for total distance covered
	Returns home over a 30 min period, speeding up for the last 10 mins	[1] mark awarded for correct interpretation of outward and return journey

<table>
<tr>
<td>5</td>
<td> 
</td>
<td>[1] Correct starting value (4 miles)
[1] Correct jog/run distance travelled
[1] Correct rest periods
[1] Correctly calculated bus journey
[1] Final speed and ending at 100 mins</td>
</tr>
<tr>
<td>6</td>
<td> 
</td>
<td>[1] mark for correct labelling of axis
[1] accurately plotted 1 line
[1] both lines accurately plotted
[1] mark for correct start and finish points</td>
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<tr>
<td>6(b)</td>
<td>No as the two lines never cross</td>
<td>[1]</td>
</tr>
<tr>
<td>6(c)</td>
<td>When Jenny completes the race Owen has approx. 1 mile left to run</td>
<td>[1]</td>
</tr>
<tr>
<td>7</td>
<td colspan="2">
<table>
<tr><th></th><th>Rests</th><th>Does not rest</th></tr>
<tr><td>Travels in only one direction</td><td>A , D [1]</td><td></td></tr>
<tr><td>Travels in multiple directions</td><td>E , F [1]</td><td>B , C , G , H [1]</td></tr>
<tr><td>Starts and ends at the same place</td><td>E [1]</td><td>C , G, H [1]</td></tr>
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END