Rate of Pay

Mario is a repairman that charges $10 an hour for his service. Alec is in the same line of work and charges $7 an hour. Tamsin charges a service fee of $40 and an additional $10 an hour. Complete the table below so show the total amount of money charged for $h$ hours of service.

<table>
<thead>
<tr>
<th>Time (h)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>10</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alec</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamsin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graph Mario, Alec, and Tamsin's rate of pay. Include a key.

Write a rule for each worker for the cost $c$ after $h$ hours of service.

Mario: $c =$
Alec: $c =$
Tamsin: $c =$

Which worker has a greater rate of pay, Mario or Alec?___________
How do you know from the graph? __________________________________________________
Which workers charge the same rate of pay? __________________________  ______________________
How do you know from the graph? __________________________________________________
How can you tell that Tamsin has a service fee from the graph? ________________________________
_________________________________________________________________________________________
The graph below shows the rate of pay for three other workers in the same line of work. Use the graph to answer the questions below.

Which worker has the highest rate of pay? ________________________________
Which worker has the lowest rate of pay? ________________________________
Which workers charge a service fee? ____________________________  __________________________
Which worker charges the higher service charge? ______________________________
Which worker does not charge a service charge? ______________________________
Would you hire Frankie, Sarah, or Benny? ___________________________
Why? _________________________________________________________________________________________________________
_______________________________________________________________________________________________

Slope: Steepness of the line  

y-intercept: Where the line crosses the y-axis

Circle the correct term.

The rate of pay is also known as the (slope, y-intercept).

The service fee is also known as the (slope, y-intercept).
Sisters Racing

Alita and Olivia are sisters. They are having a race. Alita runs at a rate of 3 meters per second. Olivia runs at a rate of 2 meters per second. Since Alita runs faster, she gives her sister a 4 meter head start. Complete the table below.

<table>
<thead>
<tr>
<th>Time (s)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alita’s Distance from Start (m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olivia Distance from Start (m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete the graph. Include a key.

Write a rule relating the distance $d$ after $s$ seconds.

Alita:_____________________

Olivia:_____________________

How can you tell from the graph which sister runs at a faster speed? ________________________________
__________________________________________________________________________________________

How can you tell from the graph which sister had a head start? ________________________________
___________________________________________________________________________________________

Circle the correct term.
The speed is also known as the (slope, y-intercept).
The head start is also known as the (slope, y-intercept).
Five brothers ran a race. Use the clues below to answer the questions below.

Clues:
The twins began at the starting line.
Their older brother began behind the starting line.
Their two younger brothers began at different distances ahead of the starting line.
Each boy ran at a fairly uniform speed.

Rules:
Adam: \( d = 6t \)
Brett: \( d = 4t + 7 \)
Caleb: \( d = 5t + 4 \)
David: \( d = 5t \)
Eric: \( d = 7t - 5 \)

Complete the table to show how fast each boy was running and how far they are from the starting line when the race began.

<table>
<thead>
<tr>
<th>Brother</th>
<th>Adam</th>
<th>Brett</th>
<th>Caleb</th>
<th>David</th>
<th>Eric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from Start</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Which brothers are the twins? ___________________________   ___________________________

2) Which brothers got the head starts? ___________________________   ___________________________

3) Which brother runs the fastest? ___________________________

4) Which two brothers run at the same rate? ___________________________   ___________________________

5) Which brother started behind the starting line? ___________________________
Below is the graph of the race between the brothers. Match each graph with the correct brother.

1) What is happening in the race when two lines are intersecting? ____________________________________________________________

2) Which two brothers stay the same distance apart throughout the race?

________________________________________

How do you know? ________________________________________________________________

3) If the finish line was 30 meters from the starting line, who won? _______________________

4) Using the equations, how can you check your answer to #3? _______________________

5) Check your answer using your strategy above.