**Summary:**

<EFOFEX>
id:fxe{f2977dea-8e88-456c-b1d2-e0a71abe975a}
FXGP:DP-ktF2hxd
FXData:

</EFOFEX> variations. Quotient Rule. Using first and second derivatives to describe the shape of a graph.

**Question:**

For the function <EFOFEX>
id:fxe{6740393c-d25b-4cbe-adab-29aef1acd0a6}
FXGP:DP-ktF2hxd
FXData:

</EFOFEX>,

1. Show that the first derivative is <EFOFEX>
   id:fxe{cf57a726-2d6b-4bb0-849d-8da7490da4df}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX>.
2. Use your results from part a) to show that the function has a stationary point at <EFOFEX>
   id:fxe{8f0022a5-51fc-4c70-976e-39ec0e86c7f4}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX>
3. A sketch graph of the function has shown that it has two stationary points. Use your previous answers to find the **x value** of the other stationary point.

It can be shown that the second derivative of the function is <EFOFEX>
id:fxe{f2600792-296e-4784-aa7d-81127b294837}
FXGP:DP-ktF2hxd
FXData:

</EFOFEX>.

1. Use the second derivative to describe the type of stationary points at <EFOFEX>
   id:fxe{f377f615-05be-42bc-9acb-4fceea1d8b86}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX> and the second stationary point from part c).

**Solution:**

1. <EFOFEX>
   id:fxe{a6f19ddc-bd4b-4342-9a9a-afe0c25534e5}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX>
2. <EFOFEX>
   id:fxe{30c41fd1-91d2-4897-a924-0d0c809b0465}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX>
3. <EFOFEX>
   id:fxe{46b562e7-cf11-4045-9459-c9c30c5c46d2}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX>
4. <EFOFEX>
   id:fxe{f0b6cda2-2dcd-4e93-98d6-1929dcc6cd32}
   FXGP:DP-ktF2hxd
   FXData:

   </EFOFEX>