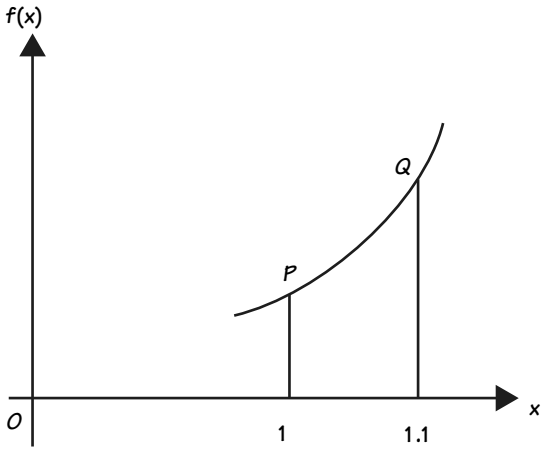
CHORD GRADIENTS

- The diagram shows an enlarged graph of $f(x) = x^2$ near $x = 1$. Find the gradient of the chord PQ.



- Repeat for Q at $x = 1.01, 1.001, 1.0001$.
  What is happening to the gradient of the chord PQ as Q gets closer to P?
  What is the gradient of the curve at P?

- Try the same process at $x = 2$, $x = 3$, $x = -1$, $x = -2$ and $x = -3$.

- Are your results consistent with those you obtained when drawing tangents to your graph of $y = x^2$?

- Plot the values of the gradients you have found against x.

- Can you suggest a formula for the gradient function for $f(x)$?

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