How do we find the slope of a curve?

Try to find the slope of this curve at the point (1,1).

First point (1,1)

Second point:

<table>
<thead>
<tr>
<th>Slope at that point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3,9)</td>
</tr>
<tr>
<td>(2,4)</td>
</tr>
<tr>
<td>(1.1, 1.21)</td>
</tr>
<tr>
<td>(1.01, 1.0201)</td>
</tr>
<tr>
<td>(1+h, (1+h)^2)</td>
</tr>
</tbody>
</table>

Slope to the left of the origin?

Slope to the right of the origin?
7 Slope of Curve

EX 1
Find the slope of the curve \( y = x^2 - 5x \) at \( (2,-6) \)

*hint:* Calculate the slope between \( (2,-6) \) and \( (2+h, f(2+h)) \)

Definition: The slope of a function, \( f \), at a point \( x = (x, f(x)) \) is given by

\[
m = f'(x) = \lim_{h \to 0} \frac{f(x + h) - f(x)}{h}
\]

\( f'(x) \) is called the derivative of \( f \) with respect to \( x \).

Other names for \( f'(x) \):
- slope
- instantaneous rate of change
- speed
- velocity

EX 2
Find the derivative of \( f(x) = 4x - 1 \)
EX 3
Find the derivative of $f(x) = x^2 + 4x - 1$

What is the slope at point $P$?