

Chapter 6 / **Example 39****Gradient of a trigonometric function**

Find the gradient of the curve $y = 3x \cos(2x)$ at the point $\left(\frac{5\pi}{6}, \frac{5\pi}{4}\right)$.

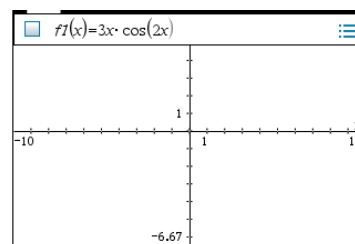
Open a new document and add a Graphs page.

The entry line is displayed at the top of the work area.

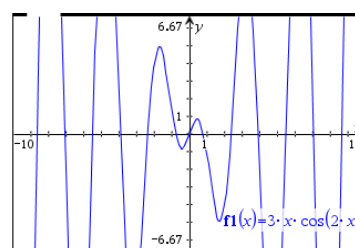
The default graph type is function, so 'f1(x)= ' is displayed.

The default axes are $-10 \leq x \leq 10$ and $-6.67 \leq y \leq 6.67$.

Type $3x \times \cos(2x)$ and press **enter**.



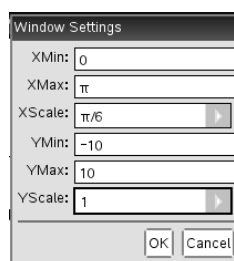
The GDC displays the graph $f1(x) = 3x^2 - 2$ with the default axes.



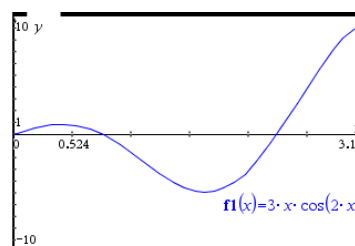
Press **menu** 4:Window/Zoom | 1:Window Settings...

Set the axes to show $0 \leq x \leq \pi$ with a scale of $\frac{\pi}{6}$ and $-10 \leq y \leq 10$ with a scale of 1.

Press **enter** when you have finished.



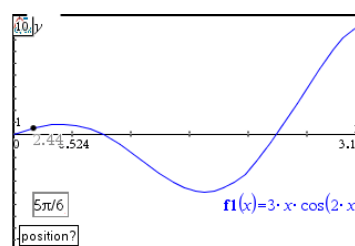
The GDC displays the curve $f1(x) = 3x \cos(2x)$ in a suitable window.



To find the gradient at $x = \frac{5\pi}{6}$ press

menu 6:Analyse Graph | 5:dy/dx

Type $5\pi \div 6$, the value of the x-coordinate, and press **enter**



Chapter 6 / **Example 39****Gradient of a trigonometric function**

The GDC displays a point on $y = 3x \cos(2x)$ and the gradient of the curve at that point.

$$y' \left(\frac{5\pi}{6} \right) = 15.1.$$

