

Chapter 10 / **Example 13**

Find the area of a region bounded by curves

Find the area of the region bounded by the curves $f(x) = e^{2x} + 1$ and $g(x) = x + 4$.

Press **MENU** 5 **GRAPH** **2/F6** to display the equation entry screen.

Type $e^{2x} + 1$ and press **EXE** to enter the first equation as Y1.

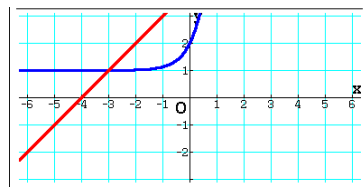
Type $x + 4$ and press **EXE** to enter the second equation as Y2.

Graph Func : Y=
Y1= $e^{2x}+1$ [—]
Y2= $x+4$ [—]
Y3: [—]
Y4: [—]
Y5: [—]
Y6: [—]
[SELECT] [DELETE] [TYPE] [TOOL] [MODIFY] [DRAW]

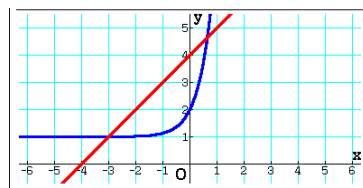
Press **F6** DRAW to display the graph screen

The GDC now displays the curves $Y_1 = e^{2x} + 1$ and $Y_2 = x + 4$.

The default axes are $-6.3 \leq x \leq 6.3$ and $-3.1 \leq y \leq 3.1$.



Press **△** twice to reposition the window so that both curves and their intersection points are visible.

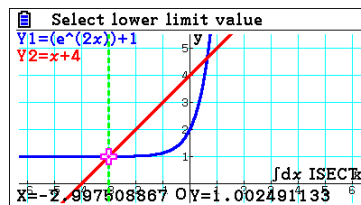


To find the area between the curve and the line

press **F5** G-SOLVE **F6** **▷** **F3** $\int dx$ **F3** INTERSECT

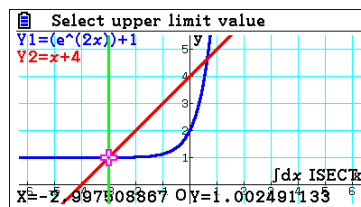
The GDC shows a cross and a line at the first intersection point and asks you to set the lower limit value.

Press **EXE**.

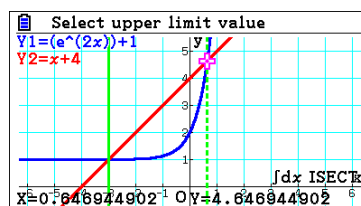


The GDC asks you to set the upper limit value.

Press **►** to move the cross and line to the second intersection point.



Press **EXE** when the second intersection point has been selected.



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The GDC has calculated the area between the curve and the line.

The area of the region is 4.83.

