

# How to find the tangent line

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To find the gradient of a function: example  $g(x) = \frac{16}{x} - 4\sqrt{x}$  at  $x = 4$

First find the y, sub the  $x = 4 \rightarrow$  equation:  $y = -4$

New point (4, -4)

$$g'(x) = \frac{-16}{x^2} - \frac{2}{\sqrt{x}}, \text{ the } M_{\text{tangent}} = g'(x)$$

Sub  $x = 4 \rightarrow g'(x)$

That will =  $M_{\text{gradient}} = -2$

The equation of the tangent is  $y = mx + c$

$$-4 = (-2)(4) + c$$

$$C = 4$$

The equation of the tangent line is:  $y = -2x + 4$