**HOW TO FIND GRADIENTS OF PERPENDICULAR STRAIGHT LINES?**

In the coordinate plane, two lines are [perpendicular](https://www.onlinemathlearning.com/pairs-of-lines.html#perpendicular) if the product of their gradients (*m*) is –1.

$$m\_{1}×m\_{2}=-1$$

Or $m\_{2}=\frac{-1}{m\_{1}}$

For example: The line y = ½ x - 1 is perpendicular to the line *y* = –2*x* – 1. The product of the two slopes is ½ × (-2) = -1.

Example: Find the gradient of the straight line that is perpendicular to the line $ y=2x-3$.

Solution: Using $m\_{2}=\frac{-1}{m\_{1}}$

 $m\_{2}=\frac{-1}{2}$

Example: Find the gradient of the straight line that is perpendicular to the line $ 3x+2y=6$

Solution: Rewrite the equation $3x+2y=6$ in the form $y=mx+c$

 $2y=-3x+6$

 $y=\frac{-3}{2}x+3$

 Hence: $m\_{1}=\frac{-3}{2}$

Therefore:$m\_{2}=\frac{-1}{\frac{-3}{2}}=\frac{2}{3}$

**EXERCISE 5**

1. Find the gradient of a straight line perpendicular to $y=-3x-10$**.**
2. Find the gradient of a straight line perpendicular to $2y-3x=6.$