

Question	Scheme	Marks	AOs
1(a)	$2x + 4y - 3 = 0 \Rightarrow y = \mp \frac{2}{4}x + \dots$ $\text{Gradient of perpendicular} = \pm \frac{4}{2}$	M1	1.1b
	Either $m = 2$ or $y = 2x + 7$	A1	1.1b
		(2)	
(b)	Combines 'their' $y = 2x + 7$ with $2x + 4y - 3 = 0 \Rightarrow 2x + 4(2x + 7) - 3 = 0 \Rightarrow x = \dots$	M1	1.1b
	$x = -2.5$ oe	A1	1.1b
		(2)	
(4 marks)			

Notes

(a)

M1: Attempts to set given equation in the form $y = ax + b$ with $a = \mp \frac{2}{4}$ oe such as $\mp \frac{1}{2}$ **AND** deduces that $m = -\frac{1}{a}$ Condone errors on the "+b"

An alternative method is to find both intercepts to get gradient $l_1 = \pm \frac{0.75}{1.5}$ and use the perpendicular gradient rule.

A1: Correct answer. Accept **either** $m = 2$ **or** $y = 2x + 7$

This must be simplified and not left as $m = \frac{4}{2}$ or $m = 2x$ unless you see $y = 2x + 7$.

Watch: There may be candidates who look at $2x + 4y - 3 = 0$ and incorrectly state that the gradient = 2 and use the perpendicular rule to get $m = -\frac{1}{2}$ They will score M0 A0 in (a) and also no marks in (b) as the lines would be parallel. In a case like this don't allow an equation to be "altered"

Candidates who state $m = 2$ or $y = 2x + 7$ **with no incorrect working** can score both marks

(b)

M1: Substitutes their $y = mx + 7$ into $2x + 4y - 3 = 0$, condoning slips, in an attempt to form and solve an equation in x. Alternatively equates their $y = -\frac{1}{2}x + \frac{3}{4}$ with their $y = mx + 7$ in an attempt to form and solve, condoning slips, an equation in x. Don't be too concerned by the mechanics of the candidates attempt to solve. (E.g. allow solutions from their calculators). You may see $2x + 4y - 3 = 2x - y + 7$ with y being found before the value of x appears

It cannot be awarded from "unsolvable" equations (e.g. lines that are parallel).

A1: $x = -2.5$

The answer alone can score both marks as long as both equations are correct and no incorrect working is seen.

Remember to isw after the correct answer and ignore any y coordinate