2015 11 b Calculate the size of the acute angle between the lines $y = 2x + 5$ and $y = 4 - 3x$. **2**

$m_1 = 2$ and $m_2 = -3$

$$\tan\theta = \left|\frac{m_1 - m_2}{1 + m_1 m_2}\right|$$

$$= \left|\frac{2 - (-3)}{1 + (2)(-3)}\right|$$

$$= \left|\frac{5}{-5}\right|$$

$$= 1$$

$$\theta = 45^\circ$$

State Mean: **1.59**

* These solutions have been provided by *projectmaths* and are not supplied or endorsed by BOSTES.

Board of Studies: Notes from the Marking Centre

In the better responses, candidates approached the question by stating a correct formula before showing the correct substitution of the gradients.
Common problems were:

- using incorrect variations of the formula, particularly

$$\tan\square = \left|\frac{m_1 + m_2}{1 \square m_1 m_2}\right|$$

- making arithmetic errors inside the absolute value signs
- giving geometric responses without including a diagram to assist with the reasoning.