1 Solve the inequality $(x+5)(x-2) > 3x+6$. [3]

2 Solve the following simultaneous equations.

$$xy + x^2 = 15$$

$$y + 3x = 11$$ [5]

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3 A curve has equation $y = \dfrac{2 + \sin 3x}{x + 1}$.

(a) Show that the exact value of $\dfrac{\mathrm{d}y}{\mathrm{d}x}$ at the point where $x = \dfrac{\pi}{6}$ can be written as $\dfrac{k}{\left(\dfrac{\pi}{6} + 1\right)^2}$, where k is an integer. [5]

(b) Find the equation of the normal to the curve at the point where $x = 0$. [4]

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