8: **In this question you must show all stages of your working.**
Solutions relying entirely on calculator technology are not acceptable.

A curve C has equation $y = f(x)$ where $f(x)$ is a polynomial in x.

Given

$$f'(x) = 2(3x - 2)(x + 5)$$

(a) deduce the range of values of x for which y is decreasing.

(2)

Given further that C cuts the x-axis at $\frac{7}{2}$

(b) state a factor of $f(x)$, giving the answer in the form $(Ax + B)$ where A and B are integers.

(1)

(c) Hence find an expression for $f(x)$ in a fully factorised form.

(6)

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Question 8 continued

Question 8 continued

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Question 8 continued

(Total for Question 8 is 9 marks)

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9: The circle C

- has a centre which lies on the x-axis
- touches the y-axis
- passes through the point (5, 6)

(a) On Diagram 1, sketch a graph of C.

(1)

(b) Find an equation for C.

(4)

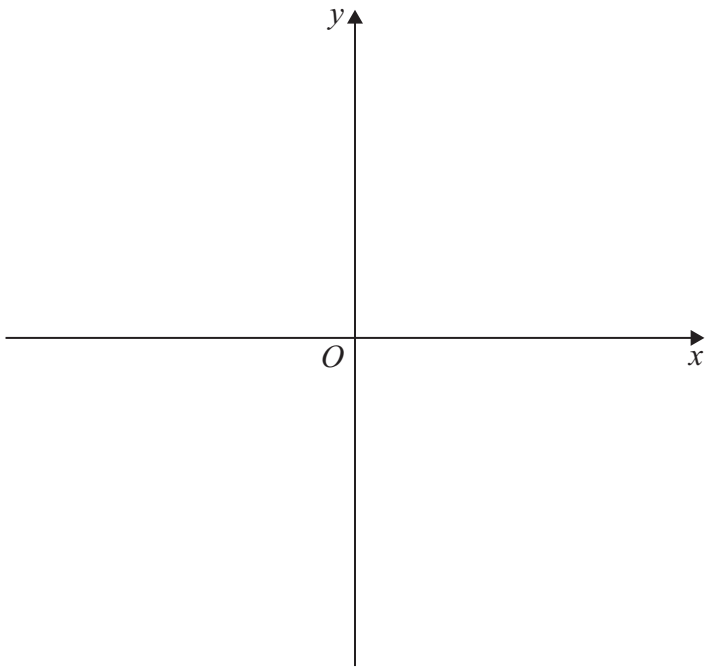

Diagram 1

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