8

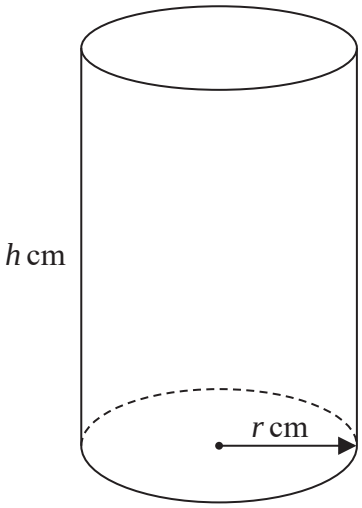

Diagram **NOT** accurately drawn

Figure 4

A solid right circular cylinder has radius r cm and height h cm, as shown in Figure 4.
The cylinder has a volume of 355 cm^3 and a total surface area of S cm^2

(a) Show that $S = 2\pi r^2 + \dfrac{710}{r}$

(4)

Given that r can vary,

(b) using calculus find, to 3 significant figures, the minimum value of S.

(5)

(c) Verify that your answer to part (b) does give the minimum value of S.

(2)

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Question 8 continued

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Question 8 continued

(Total for Question 8 is 11 marks)