10 A solid right circular cylinder has base radius r cm and height h cm. The volume of the cylinder is 50 cm^3 and the total surface area is A cm^2.

(a) Show that $A = 2\pi r^2 + \dfrac{100}{r}$

(3)

(b) Use calculus to find, to 4 significant figures, the value of r for which A is a minimum.

(3)

(c) Use calculus to verify that the value of r found in part (b) does give a minimum value of A.

(3)

(d) Find, to the nearest whole number, the minimum value of A.

(2)

Question 10 continued

Question 10 continued

(Total for Question 10 is 11 marks)

TOTAL FOR PAPER IS 100 MARKS