10. **In this question you must show all stages of your working.**

The curve C has equation $y = f(x), x > 0$

Given that

- the point $P\left(2, 8\sqrt{2}\right)$ lies on C
- $f'(x) = 4\sqrt{x^3} + \frac{k}{x^2}$ where k is a constant
- $f''(x) = 0$ at P

(a) find the exact value of k,

(4)

(b) find $f(x)$, giving your answer in simplest form.

(4)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 10 continued

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 10 continued

(Total for Question 10 is 8 marks)

TOTAL FOR PAPER IS 75 MARKS

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA