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

The binomial expansion, in ascending powers of x, of $(1 + kx)^n$ is

$$1 + 36x + 567x^2 + px^3 + ...$$

where k and p are non-zero constants and n is an integer greater than 1.

(a) Use this information to set up and solve two simultaneous equations to find the value of k and the value of n.

(6)

(b) Hence find the value of p.

(2)

(Total for Question 10 is 8 marks)

TOTAL FOR PAPER IS 75 MARKS