

- 1** The first three terms, in ascending powers of x , of the binomial expansion of $(9 + 2x)^{\frac{1}{2}}$ are given by

$$(9 + 2x)^{\frac{1}{2}} \approx a + \frac{x}{3} - \frac{x^2}{54}$$

where a is a constant.

- 1 (a)** State the range of values of x for which this expansion is valid.

Circle your answer.

[1 mark]

$|x| < \frac{2}{9}$

$|x| < \frac{2}{3}$

$|x| < 1$

$|x| < \frac{9}{2}$

- 1 (b)** Find the value of a .

Circle your answer.

[1 mark]

1

2

3

9