

Question Number	Scheme	Marks	AOs
2 (a)	$(2 - 3x)^6$		
	Constant term = 2^6	B1	1.1b
	Correct form for any of terms 2, 3 or 4 ${}^6C_1 2^5 (\pm 3x)$ or ${}^6C_2 2^4 (\pm 3x)^2$ or ${}^6C_3 2^3 (\pm 3x)^3$	M1	1.1b
	Two correct and simplified terms from $-576x + 2160x^2 - 4320x^3$	A1	1.1b
	$64 - 576x + 2160x^2 - 4320x^3$	A1	1.1b
		(4)	
(b)	$\{x = \} - 0.01$	B1	2.2a
		(1)	
(5 marks)			
Notes:			

(a)

- B1:** Constant term of 2^6 (or 64) which need not be simplified. Not scored for e.g. ${}^6C_0 2^6 (\pm 3x)^0$
Not scored if they have other constant terms in their expression, but condone if they go on to divide by e.g. 2 or 8
- M1:** Correct form for any of terms 2, 3 or 4 which may be implied by a correct simplified term.
Look for ${}^6C_1 2^5 (\pm 3x)$, ${}^6C_2 2^4 (\pm 3x)^2$ or ${}^6C_3 2^3 (\pm 3x)^3$ but condone lack of bracketing on $(\pm 3x)$
Alternatives to e.g. 6C_2 include $\binom{6}{2}$, $\frac{6!}{2!4!}$ or just 15 (FYI Pascal’s triangle: 1, 6, 15, 20)
- A1:** Two correct and simplified terms from terms 2, 3 and 4: $-576x + 2160x^2 - 4320x^3$
Ignore subsequent work for this mark only.
- A1:** Fully correct and simplified $64 - 576x + 2160x^2 - 4320x^3$ and ignore attempts at x^4 etc.
Terms may be listed or on different lines. Accept e.g. $64 + -576x + 2160x^2 + -4320x^3$
Do not ignore subsequent work if they e.g. divide through by e.g. 2 or 8.

Alt (a)

- B1:** Correctly takes out a factor and proceeds to $2^6 \left(1 - \frac{3}{2}x\right)^6$ which may be unsimplified.
May be implied.
- M1:** Expands $(1 \pm kx)^6$, $k \neq \pm 1$ to give the correct structure for the 3rd or 4th term
 $\frac{(6)(5)}{2!}(kx)^2$ or $\frac{(6)(5)(4)}{3!}(kx)^3$ with or without the brackets around kx

A1: A correct simplified or unsimplified form of the expansion of $\{64\}\left(1-\frac{3}{2}x\right)^6$

e.g. $\{64\}\left(1+(6)\left(-\frac{3}{2}x\right)+\frac{(6)(5)}{2!}\left(\pm\frac{3}{2}x\right)^2+\frac{(6)(5)(4)}{3!}\left(-\frac{3}{2}x\right)^3+\dots\right)$ or e.g.

$$\left\{2^6\right\}\left(1-9x+\frac{135}{4}x^2-\frac{135}{2}x^3\right)$$

May be implied by their final answer.

Allow terms to be listed, which may be on different lines.

Ignore subsequent work for this mark only.

A1: Fully correct and simplified $64-576x+2160x^2-4320x^3$ and ignore attempts at x^4 etc.

Terms may be listed or on different lines. Accept e.g. $64+-576x+2160x^2+-4320x^3$

Do not ignore subsequent work if they e.g. divide through by e.g. 2 or 8.

(b)

B1: Deduces that $x = -0.01$ or e.g. $-\frac{1}{100}$

Ignore any attempt to substitute a value for x in.