

Question	Scheme	Marks	AOs
<b>8 (a)</b>	$(2 + ax)^8$ Attempts the term in $x^5 = {}^8C_5 2^3 (ax)^5 = 448a^5 x^5$	M1 A1	1.1a 1.1b
	Sets $448a^5 = 3402 \Rightarrow a^5 = \frac{243}{32}$	M1	1.1b
	$\Rightarrow a = \frac{3}{2}$	A1	1.1b
		<b>(4)</b>	
<b>(b)</b>	Attempts either term. So allow for $2^8$ or ${}^8C_4 2^4 a^4$	M1	1.1b
	Attempts the sum of both terms $2^8 + {}^8C_4 2^4 a^4$	dM1	2.1
	$= 256 + 5670 = 5926$	A1	1.1b
		<b>(3)</b>	

**(7 marks)**

### Notes

**(a)**

**M1:** An attempt at selecting the correct term of the binomial expansion. If all terms are given then the correct term must be used. Allow with a missing bracket  ${}^8C_5 2^3 ax^5$  and left without the binomial coefficient expanded

**A1:**  $448a^5 x^5$  Allow unsimplified but  ${}^8C_5$  must be "numerical"

**M1:** Sets their  $448a^5 = 3402$  and proceeds to  $\Rightarrow a^k = \dots$  where  $k \in \mathbb{N}$   $k \neq 1$

**A1:** Correct work leading to  $a = \frac{3}{2}$

**(b)**

**M1:** Finds either term required. So allow for  $2^8$  or  ${}^8C_4 2^4 a^4$  (even allowing with  $a$ )

**dM1:** Attempts the sum of both terms  $2^8 + {}^8C_4 2^4 a^4$

**A1:** cso 5926