



Solution

$$\begin{aligned} \text{The } x^5 \text{ term must be } & \binom{9}{5} 4^4 (-3x)^5 \\ & = 126 \times 256 \times (-243)x^5 \\ & = -7\,838\,208x^5 \end{aligned}$$

So the coefficient of x^5 is $-7\,838\,208$.



Exercises

- Expand in full :

(a) $(1+2x)^4$	(b) $(5-2p)^3$	(c) $(6-\frac{1}{2}a)^6$
(d) $(2m+3n)^5$	(e) $(2-\frac{1}{2}r)^4$	
- Find the coefficients of

(a) x^3 in $(2+x)^{10}$	(b) a^5 in $(5-2a)^7$	(c) q^6 in $(2p+5q)^9$
(d) k^4 in $(3k-2l)^{12}$	(e) n^7 in $(5-\frac{5}{6}n)^{10}$	
- Find these to 3 s.f. without using a calculator.

(a) $(1.01)^5$	(b) $(1.02)^{10}$	(c) $(0.99)^7$
(d) $(2.01)^3$	(e) $(99.5)^4$	(f) 11^6