Additional Mathematics Exercise 4 Answers

(*Binomial Theorem*)

1. (a) $n(n-1)$ (b) $-\frac{n+1}{(n+2)!}$ (c) n (d) $\frac{(n-1)(n-2)(n-3)}{6}$
2. 1
3. –
4. (a) $32+80a+80a^2+40a^3+10a^4+a^5$

   (b) $729x^{18}-1458x^{14}+1215x^{10}-540x^6+135x^2-\frac{18}{x^2}+\frac{1}{x^6}$
5. the coefficient of $xy^6=448$, the coefficient of $x^3y^4=560$
6. 70
7. $6n^2-8n$
8. the coefficient of $x^8=45$, the coefficient of $x^4=2705$
9. $\frac{27}{2}$
10. 8
11. $n = 10$, $p = 2$, $k = 960$
12. $a = 2$, $b = 4$ or $a = –2$, $b = –4$
13. (a) – (b) –
14. (a) $1-4x+18x^2-40x^3+...$ (b) $1-6x+21x^2-44x^3+...$
15. $1+10x^2-20x^3+40x^4+...$
16. –9
17. $2n^2-n$
18. $a=-\frac{3}{2}$, the coefficient of $x^3=14$
19. (a) $1+4ax+(4b+6a^2)x^2+(12ab+4a^3)x^3+...$ (b) $a = –2$, $b = –3$