EXERCISE 7.2

1. (i) 40320, (ii) 18   2. 30, No   3. 28   4. 64
5. (i) 30, (ii) 15120

EXERCISE 7.3

1. 504   2. 4536   3. 60   4. 120, 48
5. 56   6. 9   7. (i) 3, (ii) 4   8. 40320
9. (i) 360, (ii) 720, (iii) 240   10. 33810
11. (i) 1814400, (ii) 2419200, (iii) 25401600

EXERCISE 7.4

1. 45   2. (i) 5, (ii) 6   3. 210   4. 40
5. 2000   6. 778320   7. 3960   8. 200
9. 35

Miscellaneous Exercise on Chapter 7

1. 3600   2. 1440   3. (i) 504, (ii) 588, (iii) 1632
4. 907200   5. 120   6. 50400   7. 420
8. $^4C_1 \times {}^{48}C_4$ 9. 2880   10. $^{22}C_7 + {}^{22}C_{10}$ 11. 151200

EXERCISE 8.1

1. $1 - 10x + 40x^2 - 80x^3 + 80x^4 - 32x^5$

2. $\dfrac{32}{x^5} - \dfrac{40}{x^3} + \dfrac{20}{x} - 5x + \dfrac{5}{8}x^3 - \dfrac{x^5}{32}$

3. $64\,x^6 - 576\,x^5 + 2160\,x^4 - 4320\,x^3 + 4860\,x^2 - 2916\,x + 729$

4. $\dfrac{x^5}{243} + \dfrac{5x^3}{81} + \dfrac{10}{27}x + \dfrac{10}{9x} + \dfrac{5}{3x^3} + \dfrac{1}{x^5}$

5. $x^6 + 6x^4 + 15x^2 + 20 + \dfrac{15}{x^2} + \dfrac{6}{x^4} + \dfrac{1}{x^6}$

6. 884736   7. 11040808032   8. 104060401
9. 9509900499   10. $(1.1)^{10000} > 1000$ 11. $8(a^3b + ab^3)$; $40\sqrt{6}$
12. $2(x^6 + 15x^4 + 15x^2 + 1)$, 198

EXERCISE 8.2

1. 1512

2. -101376

3. $(-1)^r {}^6C_r . x^{12-2r} . y^r$

4. $(-1)^r {}^{12}C_r . x^{24-r} . y^r$

5. $-1760 \, x^9 y^3$

6. 18564

7. $\dfrac{-105}{8} x^9 ; \dfrac{35}{48} x^{12}$

8. $61236 \, x^5 y^5$

10. $n = 7; r = 3$

12. $m = 4$

Miscellaneous Exercise on Chapter 8

1. $a = 3; b = 5; n = 6$

2. $a = \dfrac{9}{7}$

3. 171

5. $396\sqrt{6}$

6. $2a^8 + 12a^6 - 10a^4 - 4a^2 + 2$

7. 0.9510

8. $n = 10$

9. $\dfrac{16}{x} + \dfrac{8}{x^2} - \dfrac{32}{x^3} + \dfrac{16}{x^4} - 4x + \dfrac{x^2}{2} + \dfrac{x^3}{2} + \dfrac{x^4}{16} - 5$

10. $27x^6 - 54ax^5 + 117a^2x^4 - 116a^3x^3 + 117a^4x^2 - 54a^5x + 27a^6$

EXERCISE 9.1

1. 3, 8, 15, 24, 35

2. $\dfrac{1}{2}, \dfrac{2}{3}, \dfrac{3}{4}, \dfrac{4}{5}, \dfrac{5}{6}$

3. 2, 4, 8, 16 and 32

4. $-\dfrac{1}{6}, \dfrac{1}{6}, \dfrac{1}{2}, \dfrac{5}{6}$ and $\dfrac{7}{6}$

5. 25, -125, 625, -3125, 15625

6. $\dfrac{3}{2}, \dfrac{9}{2}, \dfrac{21}{2}, 21$ and $\dfrac{75}{2}$

7. 65, 93

8. $\dfrac{49}{128}$

9. 729

10. $\dfrac{360}{23}$

11. 3, 11, 35, 107, 323;   3 + 11 + 35 + 107 + 323 + ...

12. $-1, \dfrac{-1}{2}, \dfrac{-1}{6}, \dfrac{-1}{24}, \dfrac{-1}{120}; -1 + \left(\dfrac{-1}{2}\right) + \left(\dfrac{-1}{6}\right) + \left(\dfrac{-1}{24}\right) + \left(\dfrac{-1}{120}\right) + ...$