



3. (a) (i) $22x^2 + 8x - 5$ (ii) $6x^3 - 17x^2 + 13x - 20$
 (b) (i) $s = 30$ (ii) $u = \frac{2s - vt}{t}$
4. (a) $\frac{14x - 19}{20}$ (b) $\frac{-p + 27q}{21}$ (c) $\frac{-2x + 1}{6}$
5. (a) $2q(2p + 3r - 5s)$ (b) $(2a - 3b)(x + 4y)$
 (c) $7(t + 2)(t - 2)$
6. (a) $3m(5 - 4m)$ (b) $(x - 6)(x + 3)$
 (c) $16(1 + 2y)(1 - 2y)$
7. (a) $(2x + 1)(5x + 3)$ (b) $(7x - 2y)^2$
 (c) $(a + 2b)(3t + 1)(3t - 1)$
8. (a) $T = 15$ (b) $L = \frac{qT^2}{4k^2}$
 (c) $L = 18$
9. (a) 5th term: 2; 6th term = $\frac{2}{3}$ (b) -13
 (c) $3n - 1$
10. (a) (i) $7 \times 9 + 1 = 64$
 (ii) $n \times (n + 2) + 1 = (n + 1)^2$
 (b) 143 (c) $n = 27$
11. (a) $\frac{6^3 - 1}{5}$ (b) $\frac{(n + 1)^3 - 1}{n}$
 (c) 111
12. (a) $\frac{x - 2}{2x + 1}$ (b) $\frac{13}{20x}$
 (c) $\frac{7x + 11}{(x + 5)(x - 1)}$
13. (a) $\frac{4r + 42p - 3q}{6pqr}$ (b) $\frac{-2x + 10}{(x + 2)(x - 2)}$
 (c) $\frac{1}{(x - 3)(x - 2)}$
14. (a) $\frac{x - 1}{x - 2}$ (b) $\frac{x + 5}{3x - 2}$
15. (a) 3025 (b) 26 216
 (c) $n = 17$
16. (b)

n	1	2	3	4	5	6
P_n	5	8	11	14	17	20

 (c) $P_n = 3n + 2$
 (d) 29 cm
 (e) $n = 17$
17. (b)

n	1	2	3	4	5
G_n	1	4	9	16	25
R_n	5	8	11	14	17
T_n	6	12	20	30	42

 (c) (i) $G_n = n^2$ (ii) $R_n = 3n + 2$
 (iii) $T_n = (n + 1)(n + 2)$
 (d) (i) 64 (ii) 35
 (e) $n = 22$
18. (a) $x = -\frac{1}{7}, y = -\frac{5}{3}$
 (b) (i) $t = \frac{x + 1}{1 - x}$ (ii) $t = \frac{3y + 1}{2y - 2}$
 (c) $y = \frac{x + 3}{5x - 1}$

19. (a) (i) $(2x + y)(2x - y)$ (ii) $(2x + y)^2$
 (b) $4(2x + y)(-x - 2y)$ (c) $\frac{2x - 13}{(x - 3)^2}$
20. (a) $r = 15$ (b) $q = \frac{3pr}{p - 2r}$
 (c) $q = \frac{3(3t + 1)(t + 1)}{7t^2 + 1}$

Revision Topic 4

Revision Practice 4

1. (a) $A: \left(\frac{15}{4}, 0\right); B: (0, 5)$ (b) $-\frac{4}{3}$
2. (a) (i) 20°C (ii) 44°C (iii) 84°C
3. (a) $p = -1, q = 4, k = 4$ (b) $x = \frac{3}{2}$
4. (a) 62.5 units² (b) 5 (c) 0
5. (a) $A: (1, 0); B: (3, 0); C: (0, 3)$ (b) $(2, -1)$
6. (a) $k = 0$ (b) $A: (-3, 0), C: (0, 9)$
 (d) $D: (-6, 9)$
7. (a) $(-2, 4)$ (b) Maximum point
 (c) $(0, 0), (-4, 0)$
9. (a) $A: (0, 1)$ (b) 3.3 (c) $x = 1.6$
10. (b) $p = 3, q = 2$ (c) 13
11. (c) $50\text{ cm}^2; x = 5$ (d) $x = 2.8$ and $x = 7.2$
12. (a) 50 m (c) 70 m
 (d) (i) $0.6 < t < 3.4$ (ii) 5.7 s
13. (b) $B: (1, 2.5), D: (3, 2.5)$ (c) $OF = 4\text{ m}, OA = 3\text{ m}$
 (d) -0.521
14. (a) $p = 2.6$
 (c) (i) -0.45 m
 (ii) -1.05 m; 3.45 a.m.
 (iii) 00.36 a.m. and 6.54 a.m.
 (d) 0.8
15. (c) (i) $h = 6.9$; maximum volume = 522 cm^3
 (ii) $h = 3.0\text{ cm}$ and $h = 10.2\text{ cm}$
 (d) -25
16. (a) (i) $p = 12, q = -1.125$
 (iii) Maximum point: $(2.5, 13.125)$;
 minimum point: $(-0.5, -1.125)$
 (b) (i) $k = 5.66$
 (iii) $x = 0.3$ or $x = 3.3$
17. (a) $a = 15, b = 1200$
 (c) 120
 (d) -0.12
 (e) (ii) $60 < x < 320$
18. (a) $q = 12.5$
 (c) (i) $x = 1.7$ and $x = 4.5$ (ii) 7.86
 (d) -7.5
19. (a) $h = \frac{400}{\pi x^2}$
 (c) (i) $d = 422$
 (d) (i) $x = 2.6$ and $x = 5.8$ (ii) 52.4
 (iii) 4 cm
20. (a) $BC = \frac{30}{x}\text{ m}$
 (d) (i) $x = 4$ and $x = 7.5$ (ii) $x = 5.5$