

文達

中學數學

1

徐明科

黃鳴嬋

蔡培文

教師手冊 — 習題選解

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教師手冊—習題選解

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教師手冊

習題選解

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1 數和數制

練習 1.3

(P. 12)

14. $1\ 010\ 101_{(2)} = 64 + 16 + 4 + 1$

15. $1\ 100\ 110_{(2)} = 64 + 32 + 4 + 2$

16. $1\ 111\ 111_{(2)} = 64 + 32 + 16 + 8$
 $+ 4 + 2 + 1$

17. $11\ 111\ 110_{(2)} = 128 + 64 + 32 + 16$
 $+ 8 + 4 + 2$

18. $1\ 000\ 100_{(2)} = 64 + 4$

19. 對二進制數而言，凡偶數其最右的數碼均為零，凡奇數其最右的數碼均為1。

$\therefore 111_{(2)}$ 是奇數。

20. $10\ 100_{(2)}$ 是偶數。

21. $10\ 011_{(2)}$ 是奇數。

22. $11\ 010_{(2)}$ 是偶數。

練習 1.4

(P. 14)

15.

2	245	 1
2	122	 0
2	61	 1
2	30	 0
2	15	 1
2	7	 1
2	3	 1
2	1	 1
	0	

$\therefore \underline{\underline{245_{(10)} = 11\ 110\ 101_{(2)}}}$

16.

2	386	 0
2	193	 1
2	96	 0
2	48	 0
2	24	 0
2	12	 0
2	6	 0
2	3	 1
2	1	 1
	0	

$\therefore \underline{\underline{386_{(10)} = 110\ 000\ 010_{(2)}}}$

$$\begin{array}{r|l}
 2 & 516 \quad \dots\dots 0 \\
 \hline
 2 & 258 \quad \dots\dots 0 \\
 \hline
 2 & 129 \quad \dots\dots 1 \\
 \hline
 2 & 64 \quad \dots\dots 0 \\
 \hline
 2 & 32 \quad \dots\dots 0 \\
 \hline
 2 & 16 \quad \dots\dots 0 \\
 \hline
 2 & 8 \quad \dots\dots 0 \\
 \hline
 2 & 4 \quad \dots\dots 0 \\
 \hline
 2 & 2 \quad \dots\dots 0 \\
 \hline
 2 & 1 \quad \dots\dots 1 \\
 \hline
 & 0
 \end{array}$$

$$\therefore \underline{\underline{516_{(10)} = 1\,000\,000\,100_{(2)}}}$$

$$\begin{array}{r|l}
 2 & 1\,988 \quad \dots\dots 0 \\
 \hline
 2 & 994 \quad \dots\dots 0 \\
 \hline
 2 & 497 \quad \dots\dots 1 \\
 \hline
 2 & 248 \quad \dots\dots 0 \\
 \hline
 2 & 124 \quad \dots\dots 0 \\
 \hline
 2 & 62 \quad \dots\dots 0 \\
 \hline
 2 & 31 \quad \dots\dots 1 \\
 \hline
 2 & 15 \quad \dots\dots 1 \\
 \hline
 2 & 7 \quad \dots\dots 1 \\
 \hline
 2 & 3 \quad \dots\dots 1 \\
 \hline
 2 & 1 \quad \dots\dots 1 \\
 \hline
 & 0
 \end{array}$$

$$\therefore \underline{\underline{1\,988_{(10)} = 11\,111\,000\,100_{(2)}}}$$

$$\begin{array}{r|l}
 2 & 320 \quad \dots\dots 0 \\
 \hline
 2 & 160 \quad \dots\dots 0 \\
 \hline
 2 & 80 \quad \dots\dots 0 \\
 \hline
 2 & 40 \quad \dots\dots 0 \\
 \hline
 2 & 20 \quad \dots\dots 0 \\
 \hline
 2 & 10 \quad \dots\dots 0 \\
 \hline
 2 & 5 \quad \dots\dots 1 \\
 \hline
 2 & 2 \quad \dots\dots 0 \\
 \hline
 2 & 1 \quad \dots\dots 1 \\
 \hline
 & 0
 \end{array}$$

$$\therefore \underline{\underline{320_{(10)} = 101\,000\,000_{(2)}}}$$

$$\begin{array}{r|l}
 2 & 645 \quad \dots\dots 1 \\
 \hline
 2 & 322 \quad \dots\dots 0 \\
 \hline
 2 & 161 \quad \dots\dots 1 \\
 \hline
 2 & 80 \quad \dots\dots 0 \\
 \hline
 2 & 40 \quad \dots\dots 0 \\
 \hline
 2 & 20 \quad \dots\dots 0 \\
 \hline
 2 & 10 \quad \dots\dots 0 \\
 \hline
 2 & 5 \quad \dots\dots 1 \\
 \hline
 2 & 2 \quad \dots\dots 0 \\
 \hline
 2 & 1 \quad \dots\dots 1 \\
 \hline
 & 0
 \end{array}$$

$$\therefore \underline{\underline{645_{(10)} = 1\,010\,000\,101_{(2)}}}$$

練習 1.5

(P. 16)

$$\begin{aligned}
 11. \quad & 3_{(10)} + 6_{(10)} \\
 & = 11_{(2)} + 110_{(2)} \\
 & = \underline{\underline{1\,001_{(2)}}}
 \end{aligned}$$

$$\begin{aligned}
 12. \quad & 4_{(10)} + 5_{(10)} \\
 & = 100_{(2)} + 101_{(2)} \\
 & = \underline{\underline{1\,001_{(2)}}}
 \end{aligned}$$

$$\begin{aligned}
 13. \quad & 15_{(10)} + 7_{(10)} \\
 & = 1\,111_{(2)} + 111_{(2)} \\
 & = \underline{\underline{10\,110_{(2)}}}
 \end{aligned}$$

$$\begin{aligned}
 14. \quad & 18_{(10)} + 10_{(10)} \\
 & = 10\,010_{(2)} + 1\,010_{(2)} \\
 & = \underline{\underline{11\,100_{(2)}}}
 \end{aligned}$$

$$\begin{aligned}
 15. \quad & 58_{(10)} + 30_{(10)} \\
 & = 111\,010_{(2)} + 1\,1110_{(2)} \\
 & = \underline{\underline{1\,011\,000_{(2)}}}
 \end{aligned}$$

$$\begin{aligned}
 16. \quad & 82_{(10)} + 86_{(10)} \\
 & = 1\,010\,010_{(2)} + 1\,010\,110_{(2)} \\
 & = \underline{\underline{10\,101\,000_{(2)}}}
 \end{aligned}$$

練習 1.6

(P. 18)

15. $16_{(10)} - 15_{(10)}$
 $= 10\,000_{(2)} - 1\,111_{(2)}$
 $= \underline{\underline{1_{(2)}}}$
16. $32_{(10)} - 31_{(10)}$
 $= 100\,000_{(2)} - 11\,111_{(2)}$
 $= \underline{\underline{1_{(2)}}}$
17. $65_{(10)} - 37_{(10)}$
 $= 1\,000\,001_{(2)} - 100\,101_{(2)}$
 $= \underline{\underline{11\,100_{(2)}}}$
18. $102_{(10)} - 24_{(10)}$
 $= 1\,100\,110_{(2)} - 11\,000_{(2)}$
 $= \underline{\underline{1\,001\,110_{(2)}}}$

8.

$$\begin{array}{r} 2 \mid 1\,794 \\ 3 \mid \quad 897 \\ 13 \mid \quad \quad 299 \\ \hline 23 \end{array}$$

$$\therefore \underline{\underline{1\,794 = 2 \times 3 \times 13 \times 23}}$$

9.

$$\begin{array}{r} 19 \mid 12\,673 \\ 23 \mid \quad 667 \\ \hline 29 \end{array}$$

$$\therefore \underline{\underline{12\,673 = 19 \times 23 \times 29}}$$

10.

$$\begin{array}{r} 2 \mid 54\,230 \\ 5 \mid 27\,115 \\ 11 \mid \quad 5\,423 \\ 17 \mid \quad \quad 493 \\ \hline 29 \end{array}$$

$$\therefore \underline{\underline{54\,230 = 2 \times 5 \times 11 \times 17 \times 29}}$$

練習 1.8

(P. 22)

21. $30 = 2 \times 3 \times 5$

$\therefore$ 30 的因數有

2	(偶)
3	(奇)
5	(奇)
6 ($= 2 \times 3$)	(偶)
10 ($= 2 \times 5$)	(偶)
15 ($= 3 \times 5$)	(奇)
30	(偶)

22. 333 與 66 都是 3 的倍數，所以其和 $333 + 66$ 與其差 $333 - 66$ 都是 3 的倍數。但 64 不是 3 的倍數，

$\therefore 333 \pm 64$ 不可能是 3 的倍數。

12. 此題所用的方法稱為篩選法。最後得到 2 到 200 間的質數如下：

2	3	5	7	11	13	17
19	23	29	31	37	41	43
47	53	59	61	67	71	73
79	83	89	97	101	103	107
109	113	127	131	137	139	149
151	157	163	167	173	179	181
191	193	197	199			

練習 1.9

(P. 25)

7.
$$\begin{array}{r} 11 \mid 7\,337 \\ 23 \mid \quad 667 \\ \hline 29 \end{array}$$

$$\therefore \underline{\underline{7\,337 = 11 \times 23 \times 29}}$$

練習 1.10

(P. 28)

8.

$$\begin{array}{r} 2 \mid 18 \quad 24 \quad 36 \\ 3 \mid \quad 9 \quad 12 \quad 18 \\ 3 \mid \quad \quad 3 \quad 4 \quad 6 \\ 2 \mid \quad \quad \quad 1 \quad 4 \quad 2 \\ \hline \quad \quad \quad 1 \quad 2 \quad 1 \end{array}$$

$$\therefore \text{H.C.F.} = 2 \times 3 = \underline{\underline{6}}$$

$$\text{L.C.M.} = 2 \times 3 \times 3 \times 2 \times 2 = \underline{\underline{72}}$$

9.

2	144	324	198
3	72	162	99
3	24	54	33
2	8	18	11
	4	9	11

$$\therefore \text{H.C.F.} = 2 \times 3 \times 3 \\ = \underline{\underline{18}}$$

$$\text{L.C.M.} = 2 \times 3 \times 3 \times 2 \times 4 \times 9 \times 11 \\ = \underline{\underline{14\,256}}$$

10.

5	90	135	195
3	18	27	39
3	6	9	13
	2	3	13

$$\therefore \text{H.C.F.} = 3 \times 5 \\ = \underline{\underline{15}}$$

$$\text{L.C.M.} = 15 \times 3 \times 2 \times 3 \times 13 \\ = \underline{\underline{3\,510}}$$

練習 1.11**(P. 33)**

$$13. \text{ 原式} = \frac{1}{2} \times \frac{1}{5} \\ = \underline{\underline{\frac{1}{10}}}$$

$$14. \text{ 原式} = \frac{5}{2} \times \frac{5}{3} \\ = \frac{25}{6} \\ = 4 \frac{1}{6} \\ = \underline{\underline{4 \frac{1}{6}}}$$

$$15. \text{ 原式} = \frac{15}{2} \times \frac{5}{12} \\ = \frac{25}{8} \\ = 3 \frac{1}{8} \\ = \underline{\underline{3 \frac{1}{8}}}$$

$$16. \text{ 原式} = \frac{10}{3} \times \frac{5}{9} \\ = \frac{50}{27} \\ = 1 \frac{23}{27} \\ = \underline{\underline{1 \frac{23}{27}}}$$

$$17. \text{ 原式} = \frac{5}{8} \times \frac{6}{5} \times \frac{3}{2} \\ = \frac{9}{8} \\ = 1 \frac{1}{8} \\ = \underline{\underline{1 \frac{1}{8}}}$$

$$18. \text{ 原式} = 12 \div \frac{1}{6} \\ = \underline{\underline{72}}$$

練習 1.12**(P. 35)**

$$12. \text{ 原式} = 10 + 7 \\ = \underline{\underline{17}}$$

$$13. \text{ 原式} = 199 - 42 \\ = \underline{\underline{157}}$$

$$14. \text{ 原式} = 256 - 176 \\ = \underline{\underline{80}}$$

$$15. \text{ 原式} = (1 \frac{2}{5} + 2 \frac{3}{5}) + \frac{1}{4} \\ = 4 \frac{1}{4} \\ = \underline{\underline{4 \frac{1}{4}}}$$

$$16. \text{ 原式} = (1 \frac{2}{6} + 10 \frac{1}{6}) - \frac{1}{4} \\ = 11 \frac{1}{4} \\ = \underline{\underline{11 \frac{1}{4}}}$$

$$17. \text{ 原式} = (2 \frac{7}{8} - 1 \frac{6}{8}) + 3 \frac{5}{6} \\ = 1 \frac{1}{8} + 3 \frac{5}{6} \\ = 4 \frac{23}{24} \\ = \underline{\underline{4 \frac{23}{24}}}$$

$$\begin{aligned}
 18. \quad \text{原式} &= 100 - [18 - 9] \\
 &= 100 - 9 \\
 &= \underline{\underline{91}}
 \end{aligned}$$

測驗選解

$$\begin{array}{rcl}
 1. \quad (a) & 2 \overline{) 18} & \dots\dots 0 \\
 & \underline{2 9} & \dots\dots 1 \\
 & 2 \overline{) 4} & \dots\dots 0 \\
 & \underline{2} & \dots\dots 0 \\
 & \underline{1} & \dots\dots 1 \\
 & 0 &
 \end{array}$$

$$\therefore \underline{\underline{18_{(10)} = 10\,010_{(2)}}}$$

$$\begin{array}{rcl}
 (b) & 2 \overline{) 27} & \dots\dots 1 \\
 & \underline{2 13} & \dots\dots 1 \\
 & 2 \overline{) 6} & \dots\dots 0 \\
 & \underline{3} & \dots\dots 0 \\
 & \underline{1} & \dots\dots 1 \\
 & 0 &
 \end{array}$$

$$\therefore \underline{\underline{27_{(10)} = 11\,011_{(2)}}}$$

$$\begin{aligned}
 (c) \quad 11\,000_{(2)} &= 1 \times 16 + 1 \times 8 \\
 &= \underline{\underline{24_{(10)}}}
 \end{aligned}$$

$$\begin{aligned}
 (d) \quad 1101_{(2)} &= 1 \times 8 + 1 \times 4 + 1 \times 1 \\
 &= \underline{\underline{13_{(10)}}}
 \end{aligned}$$

$$2. \quad (a) \quad 1101 + 1111 = 11100$$

$$(b) \quad 1000 - 111 = 1$$

$$\begin{aligned}
 (c) \quad 11010 + (111 - 1011) &= 11010 + 111 - 1011 \\
 &= 11010 + 111 - 1011 \\
 &= 100001 - 1011 \\
 &= \underline{\underline{10110}}
 \end{aligned}$$

$$\begin{aligned}
 (d) \quad 1110 - (101 - 111) &= 1110 - 101 + 111 \\
 &= 1001 + 111 \\
 &= \underline{\underline{10000}}
 \end{aligned}$$

複習題 1

(P. 36)

$$\begin{aligned}
 19. \quad \text{原式} &= \frac{5}{7} \times \frac{7}{3} + \frac{9}{14} \times \frac{3}{7} \\
 &= \frac{490}{294} + \frac{81}{294} \\
 &= \underline{\underline{1 \frac{277}{294}}}
 \end{aligned}$$

$$\begin{aligned}
 20. \quad \text{原式} &= 15 - 10 \\
 &= \underline{\underline{5}}
 \end{aligned}$$

$$\begin{aligned}
 21. \quad \text{原式} &= \frac{1}{3} \times 6 \\
 &= \underline{\underline{2}}
 \end{aligned}$$

$$\begin{aligned}
 22. \quad \text{原式} &= \frac{1}{2} \times \frac{3}{8} \\
 &= \underline{\underline{\frac{3}{16}}}
 \end{aligned}$$

$$\begin{aligned}
 23. \quad \text{原式} &= \frac{5}{6} \div \frac{2}{5} \\
 &= \frac{25}{12} \\
 &= \underline{\underline{2 \frac{1}{12}}}
 \end{aligned}$$

$$\begin{aligned}
 24. \quad \text{原式} &= \frac{\frac{1}{2}}{1 + \frac{3}{2} \times \frac{2}{3}} \\
 &= \underline{\underline{\frac{1}{4}}}
 \end{aligned}$$

3.

2	84	108	132
2	42	54	66
3	21	27	33
	7	9	11

$$\therefore \text{H.C.F.} = 2 \times 2 \times 3$$

$$= \underline{\underline{12}}$$

$$\text{L.C.M.} = 2 \times 2 \times 3 \times 7 \times 9 \times 11$$

$$= \underline{\underline{8316}}$$

4.

5	1575
5	315
7	63
	9

$$\therefore 1575 = \underline{\underline{5^2 \times 7 \times 9}}$$

5.

$$\frac{3}{5} = \frac{312}{520}$$

$$\frac{5}{8} = \frac{325}{520}$$

$$\frac{8}{13} = \frac{320}{520}$$

$$\therefore \underline{\underline{\frac{3}{5} < \frac{8}{13} < \frac{5}{8}}}$$

6.

$$6 \div \{8 - [6 \times (4 - 2) - 7]\} \times 25$$

$$= 6 \div \{8 - [12 - 7]\} \times 25$$

$$= 6 \div 3 \times 25$$

$$= 2 \times 25$$

$$= \underline{\underline{50}}$$

7.

$$[(45 + 35) \div 8 + 5] \div \frac{1}{3}$$

$$= [80 \div 8 + 5] \div \frac{1}{3}$$

$$= [10 + 5] \times 3$$

$$= \underline{\underline{45}}$$

8.

$$\frac{5}{6} - \frac{3}{10} \times \frac{4}{9} \div 1\frac{1}{3}$$

$$= \frac{5}{6} - \frac{3}{10} \times \frac{4}{9} \times \frac{3}{4}$$

$$= \frac{5}{6} - \frac{1}{10}$$

$$= \frac{25}{30} - \frac{3}{30}$$

$$= \frac{22}{30}$$

$$= \underline{\underline{\frac{11}{15}}}$$

9.

$$[(\frac{1}{2} + \frac{1}{5}) \times 1\frac{2}{3} - \frac{4}{9}] \times \frac{3}{5}$$

$$= [\frac{7}{10} \times \frac{5}{3} - \frac{4}{9}] + \frac{3}{5}$$

$$= [\frac{7}{6} - \frac{4}{9}] \times \frac{3}{5}$$

$$= \frac{13}{18} \times \frac{3}{5}$$

$$= \underline{\underline{\frac{13}{30}}}$$

10.

$$0.5 - \frac{1}{3}$$

$$0.25 \times 3\frac{1}{5} - 0.3 \times 1\frac{2}{3}$$

$$= \frac{\frac{1}{2} - \frac{1}{3}}{\frac{1}{4} \times \frac{16}{5} - \frac{3}{10} \times \frac{5}{3}}$$

$$= \frac{\frac{1}{6}}{\frac{4}{5} - \frac{1}{2}}$$

$$= \frac{\frac{1}{6}}{\frac{4}{5} - \frac{1}{2}}$$

$$= \frac{\frac{1}{6}}{\frac{4}{5} - \frac{1}{2}}$$

$$= \frac{\frac{1}{6}}{\frac{4}{5} - \frac{1}{2}}$$

$$= \frac{\frac{1}{6}}{\frac{4}{5} - \frac{1}{2}}$$

$$= \frac{1}{6} \times \frac{10}{3}$$

$$= \underline{\underline{\frac{5}{9}}}$$

2 公式,開句和簡易方程

練習 2.1

(P. 40)

$$\begin{aligned} 11. \quad & (k \div 3) \times 5 \\ &= \frac{k}{3} \times 5 \\ &= \frac{5k}{3} \end{aligned}$$

$$\begin{aligned} 12. \quad & 6 \times (3 \times x - y) \\ &= 6 \times (3x - y) \\ &= \underline{6(3x - y)} \end{aligned}$$

$$\begin{aligned} 13. \quad & (5 + 4 \times a) \div 3 \\ &= (5 + 4a) \div 3 \\ &= \frac{5 + 4a}{3} \end{aligned}$$

$$\begin{aligned} 14. \quad & (7 \times a \times a + b \times b) \times 6 \\ &= (7a^2 + b^2) \times 6 \\ &= \underline{6(7a^2 + b^2)} \end{aligned}$$

$$\begin{aligned} 15. \quad & (3 \times f \times g + h) \times 5 \times k \\ &= (3fg + h) \times 5k \\ &= \underline{5k(3fg + h)} \end{aligned}$$

$$\begin{aligned} 16. \quad & (a \times 5 + 1 \times 1) \div m \\ &= (5a + 1) \div m \\ &= \frac{5a + 1}{m} \end{aligned}$$

練習 2.2

(P. 43)

$$\begin{aligned} 40. \quad D &= 4ac + b^2 \\ &= 56 + 64 \\ &= \underline{120} \end{aligned}$$

$$\begin{aligned} 41. \quad I &= PRT \\ &= 2000 \times 0.1 \times 100 \\ &= \underline{20000} \end{aligned}$$

$$\begin{aligned} 42. \quad V &= IR \\ &= 5 \times 10 \\ &= \underline{50} \end{aligned}$$

$$\begin{aligned} 43. \quad S &= \frac{a^2 - b^2}{c^2} \\ &= \frac{5^2 - 4^2}{3^2} \\ &= \frac{25 - 16}{9} \\ &= \underline{1} \end{aligned}$$

$$\begin{aligned} 44. \quad A &= \pi rl \\ &= \frac{22}{7} \times 6 \times 21 \\ &= \underline{396} \end{aligned}$$

$$\begin{aligned} 45. \quad V &= \frac{1}{3} \pi r^2 h \\ &= \frac{1}{3} \times \frac{22}{7} \times 4^2 \times 14 \\ &= \frac{704}{3} \end{aligned}$$

$$\begin{aligned}
 46. \quad V &= abc \\
 &= 10 \times 6 \times 8 \\
 &= \underline{\underline{480}}
 \end{aligned}$$

$$\begin{aligned}
 47. \quad A &= \frac{1}{2} (a + b)h \\
 &= \frac{1}{2} (16 + 8) \times 10 \\
 &= \frac{1}{2} \times 24 \times 10 \\
 &= \underline{\underline{120}}
 \end{aligned}$$

$$\begin{aligned}
 48. \quad E &= mc^2 \\
 &= 4 \times 5^2 \\
 &= \underline{\underline{100}}
 \end{aligned}$$

$$\begin{aligned}
 49. \quad W &= mg \\
 &= 100 \times 10 \\
 &= \underline{\underline{1000}}
 \end{aligned}$$

$$\begin{aligned}
 50. \quad l &= a + (n - 1)d \\
 &= 3 + (7 - 1) \times 2 \\
 &= 3 + 6 \times 2 \\
 &= \underline{\underline{15}}
 \end{aligned}$$

$$\begin{aligned}
 51. \quad B &= (s - a)(s - b)(s - c) \\
 &= (21 - 13) \times (21 - 14) \times (21 - 15) \\
 &= 8 \times 7 \times 6 \\
 &= \underline{\underline{336}}
 \end{aligned}$$

$$\begin{aligned}
 52. \quad F &= \frac{9}{5}C + 32 \\
 &= \frac{9}{5} \times 40 + 32 \\
 &= \underline{\underline{104}}
 \end{aligned}$$

$$\begin{aligned}
 53. \quad K &= 273 + t \\
 &= 273 + 28 \\
 &= \underline{\underline{301}}
 \end{aligned}$$

$$\begin{aligned}
 54. \quad P &= a^2 + b^2 - 2ax \\
 &= 21^2 + 13^2 - 2 \times 21 \times 5 \\
 &= \underline{\underline{400}}
 \end{aligned}$$

$$\begin{aligned}
 55. \quad A &= U^r + V^u \\
 &= 2^3 + 3^2 \\
 &= \underline{\underline{17}}
 \end{aligned}$$

$$\begin{aligned}
 56. \quad d &= \frac{1}{2} at^2 \\
 &= \frac{1}{2} \times 3 \times 9^2 \\
 &= \underline{\underline{\frac{243}{2}}}
 \end{aligned}$$

$$\begin{aligned}
 57. \quad S &= ut^2 - 5t \\
 &= 20 \times 5^2 - 5 \times 5 \\
 &= \underline{\underline{475}}
 \end{aligned}$$

練習 2.3

(P. 46)

$$\begin{aligned}
 22. \quad \because \quad &5 \times 5 \times 5 = 125 \\
 \therefore \quad &(\underline{\underline{5}}) \times (\underline{\underline{5}}) \times (\underline{\underline{5}}) = 125
 \end{aligned}$$

$$\begin{aligned}
 23. \quad \because \quad &\frac{75}{5} = 15 \\
 \therefore \quad &75 = 5 \times (\underline{\underline{15}})
 \end{aligned}$$

$$\begin{aligned}
 24. \quad \because \quad &\frac{132}{11} = 12 \\
 \therefore \quad &(\underline{\underline{12}}) \times 11 = 132
 \end{aligned}$$

$$\begin{aligned}
 25. \quad \because \quad &6 - 3 - 3 = 0 \\
 \therefore \quad &6 - (\underline{\underline{3}}) - (\underline{\underline{3}}) = 0
 \end{aligned}$$

註: 若不要括號中兩數相等, 則此題可有多個解, 如 5, 1 等。第 26 及 28 題亦有同樣情況。

$$\begin{aligned}
 26. \quad \because \quad &\frac{36}{2} = 18 \\
 \therefore \quad &(\underline{\underline{18}}) + (\underline{\underline{18}}) = 36
 \end{aligned}$$

$$\begin{aligned}
 27. \quad \because \quad &\frac{108}{27} = 4 \\
 \therefore \quad &\frac{128}{(\underline{\underline{4}})} = 27
 \end{aligned}$$

$$\begin{aligned}
 28. \quad \because \quad &\sqrt{9} = 3 \\
 \therefore \quad &(\underline{\underline{3}}) \times (\underline{\underline{3}}) = 9
 \end{aligned}$$

$$29. \quad \therefore \frac{72}{8} = 9$$

$$\therefore (\underline{9}) \times 8 = 72$$

$$30. \quad \therefore \frac{45}{5} = 9$$

$$\therefore 45 \div (\underline{9}) = 5$$

$$66. \quad \frac{b-7}{7} = 7$$

$$b-7 = 7 \times 7$$

$$b = 49 + 7$$

$$\therefore b = \underline{56}$$

$$67. \quad \frac{3x+7}{8} = 5$$

$$3x+7 = 5 \times 8$$

$$3x = 40 - 7$$

$$x = \frac{33}{3}$$

$$\therefore x = \underline{11}$$

$$68. \quad \frac{3m+6}{5} = 9$$

$$3m+6 = 9 \times 5$$

$$3m = 45 - 6$$

$$m = \frac{39}{3}$$

$$\therefore m = \underline{13}$$

$$69. \quad \frac{7k+43}{13} = 5$$

$$7k+43 = 5 \times 13$$

$$7k = 65 - 43$$

$$\therefore k = \frac{22}{7}$$

$$70. \quad \frac{3y+6}{3} = 49$$

$$3y+6 = 49 \times 3$$

$$3y = 147 - 6$$

$$y = \frac{141}{3}$$

$$\therefore y = \underline{47}$$

$$71. \quad \frac{5x+31}{11} = 11$$

$$5x+31 = 11 \times 11$$

$$5x = 121 - 31$$

$$x = \frac{90}{5}$$

$$\therefore x = \underline{18}$$

練習 2.4

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$$61. \quad \frac{x+12}{3} = 8$$

$$x+12 = 8 \times 3$$

$$x = 24 - 12$$

$$\therefore x = \underline{12}$$

$$62. \quad \frac{y+24}{2} = 63$$

$$y+24 = 63 \times 2$$

$$y = 126 - 24$$

$$\therefore y = \underline{102}$$

$$63. \quad \frac{z+7}{8} = 4$$

$$z+7 = 4 \times 8$$

$$z = 32 - 7$$

$$\therefore z = \underline{25}$$

$$64. \quad \frac{x-14}{9} = 12$$

$$x-14 = 12 \times 9$$

$$x = 108 + 14$$

$$\therefore x = \underline{122}$$

$$65. \quad \frac{m-7}{4} = 6$$

$$m-7 = 6 \times 4$$

$$m = 24 + 7$$

$$\therefore m = \underline{31}$$

$$\begin{aligned}
 72. \quad \frac{4x + 25}{15} &= 15 \\
 4x + 25 &= 15 \times 15 \\
 4x &= 225 - 25 \\
 x &= \frac{200}{4} \\
 \therefore x &= \underline{\underline{50}}
 \end{aligned}$$

$$\begin{aligned}
 73. \quad \frac{4x - 10}{9} &= 6 \\
 4x - 10 &= 6 \times 9 \\
 4x &= 54 + 10 \\
 x &= \frac{64}{4} \\
 \therefore x &= \underline{\underline{16}}
 \end{aligned}$$

$$\begin{aligned}
 74. \quad \frac{8q - 10}{5} &= 6 \\
 8q - 10 &= 6 \times 5 \\
 8q &= 30 + 10 \\
 q &= \frac{40}{8} \\
 \therefore q &= \underline{\underline{5}}
 \end{aligned}$$

$$\begin{aligned}
 75. \quad \frac{8p - 8}{12} &= 16 \\
 8p - 8 &= 16 \times 12 \\
 8p &= 192 + 8 \\
 p &= \frac{200}{8} \\
 \therefore p &= \underline{\underline{25}}
 \end{aligned}$$

$$\begin{aligned}
 76. \quad \frac{14x - 10}{11} &= 8 \\
 14x - 10 &= 8 \times 11 \\
 14x &= 88 + 10 \\
 x &= \frac{98}{14} \\
 \therefore x &= \underline{\underline{7}}
 \end{aligned}$$

$$\begin{aligned}
 77. \quad \frac{20x - 120}{18} &= 10 \\
 20x - 120 &= 10 \times 18 \\
 20x &= 180 + 120 \\
 x &= \frac{300}{20} \\
 \therefore x &= \underline{\underline{15}}
 \end{aligned}$$

$$\begin{aligned}
 78. \quad \frac{13q - 18}{14} &= 8 \\
 13q - 18 &= 8 \times 14 \\
 13q &= 112 + 18 \\
 q &= \frac{130}{13} \\
 \therefore q &= \underline{\underline{10}}
 \end{aligned}$$

$$\begin{aligned}
 79. \quad \frac{2y + 3}{7} + 24 &= 27 \\
 \frac{2y + 3}{7} &= 27 - 24 \\
 2y + 3 &= 3 \times 7 \\
 2y &= 21 - 3 \\
 y &= \frac{18}{2} \\
 \therefore y &= \underline{\underline{9}}
 \end{aligned}$$

$$\begin{aligned}
 80. \quad \frac{4p + 8}{6} + 6 &= 10 \\
 \frac{4p + 8}{6} &= 10 - 6 \\
 4p + 8 &= 4 \times 6 \\
 4p &= 24 - 8 \\
 p &= \frac{16}{4} \\
 \therefore p &= \underline{\underline{4}}
 \end{aligned}$$

$$\begin{aligned}
 81. \quad \frac{9y + 27}{3} + 3 &= 13 \\
 \frac{9y + 27}{3} &= 13 - 3 \\
 9y + 27 &= 10 \times 3 \\
 9y &= 30 - 27 \\
 y &= \frac{3}{9} \\
 \therefore y &= \underline{\underline{\frac{1}{3}}}
 \end{aligned}$$

$$\begin{aligned}
 82. \quad \frac{20x - 120}{18} + 7 &= 27 \\
 \frac{20x - 120}{18} &= 27 - 7 \\
 20x - 120 &= 20 \times 18 \\
 20x &= 360 + 120 \\
 x &= \frac{480}{20} \\
 \therefore x &= \underline{\underline{24}}
 \end{aligned}$$

$$\begin{aligned}
 83. \quad \frac{6x + 21}{14} - 4 &= 2 \\
 \frac{6x + 21}{14} &= 2 + 4 \\
 6x + 21 &= 6 \times 14 \\
 6x &= 84 - 21 \\
 x &= \frac{63}{6} \\
 \therefore x &= \underline{\underline{\frac{21}{2}}}
 \end{aligned}$$

$$\begin{aligned}
 84. \quad \frac{49a - 10}{32} - 5 &= 10 \\
 \frac{49a - 10}{32} &= 10 + 5 \\
 49a - 10 &= 15 \times 32 \\
 49a &= 480 + 10 \\
 a &= \frac{490}{49} \\
 \therefore a &= \underline{\underline{10}}
 \end{aligned}$$

$$\begin{aligned}
 85. \quad \frac{9y - 19}{13} - 3 &= 15 \\
 \frac{9y - 19}{13} &= 15 + 3 \\
 9y - 19 &= 18 \times 13 \\
 9y &= 234 + 19 \\
 \therefore y &= \underline{\underline{\frac{253}{9}}}
 \end{aligned}$$

練習 2.5

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11. 設該小童原有款 x 元，
依題意得：

$$\begin{aligned}
 x - \frac{1}{10}x - \left[\frac{2}{3} \times \left(x - \frac{1}{10}x \right) \right] &= 30 \\
 x - \frac{1}{10}x - \frac{3}{5}x &= 30 \\
 10x - x - 6x &= 300 \\
 3x &= 300 \\
 x &= 100
 \end{aligned}$$

$\therefore$ 該小童原有款 100元。

12. 設弟有 x 元，則兄有 $(40 + x)$ 元。
依題意得：

$$\begin{aligned}
 x + (40 + x) &= 300 \\
 2x &= 300 - 40 \\
 x &= 130
 \end{aligned}$$

$\therefore$ 兄有 170元，弟有 130元。

13. 設此正方形的周長為 x 厘米。則其邊長為 $\frac{x}{4}$ 厘米。

依題意得：

$$\begin{aligned}
 \left(\frac{x}{4} \right)^2 &= 144 \\
 \frac{x}{4} &= 12 \\
 x &= 48
 \end{aligned}$$

$\therefore$ 此正方形的周長為 48厘米。

14. 設長方形的闊度為 x 厘米。
依題意得：

$$\begin{aligned}
 12 \times x &= 132 \\
 x &= 11
 \end{aligned}$$

$\therefore$ 長方形的闊度為 11厘米。

15. 設該圓的半徑為 r 厘米。
則 $2\pi r = 88$

$$\begin{aligned}
 \therefore r &= \frac{88}{2\pi} \\
 &= \frac{88}{2 \times \frac{22}{7}} \\
 &= 14
 \end{aligned}$$

$$\begin{aligned}
 \text{故該圓的面積} &= \pi r^2 \\
 &= \frac{22}{7} \times 14^2 \\
 &= \underline{\underline{616}} \text{(平方厘米)}
 \end{aligned}$$

16. 設父親體重為 x 公斤，
依題意得：

$$\begin{aligned}
 x - 2 \times 35 &= 3 \\
 x &= 73
 \end{aligned}$$

$\therefore$ 父親體重為 73 公斤。

17. 設學生的人數為 x 。
依題意，糖的粒數為 $8x$ 。

$$\begin{aligned}
 \text{則 } 9x &= 8x + 15 \\
 x &= 15
 \end{aligned}$$

$$8x = 120$$

$\therefore$ 學生 15 人，糖 120 粒。

18. 設兩人合做 x 小時可完成。
依題意得：

$$\begin{aligned}
 \left(\frac{1}{4} + \frac{1}{6}\right)x &= 1 \\
 x &= 2.4
 \end{aligned}$$

$\therefore$ 兩人合做 2.4 小時 可完成。

19. 設 A、B 兩地相距 x 公里。
依題意得：

$$\begin{aligned}
 x &= 3 \times 6 + 4 \times 6 \\
 &= 42
 \end{aligned}$$

$\therefore$ A、B 兩地相距 42 公里。

20. 設某人步行了 x 小時。
依題意得：

$$\begin{aligned}
 3x + 24(6 - x) &= 102 \\
 3x + 144 - 24x &= 102 \\
 -21x &= -42 \\
 x &= 2
 \end{aligned}$$

$\therefore$ 某人步行了 2 小時。

複習題 2

(P. 57)

$$\begin{aligned}
 27. \quad F &= \frac{mv^2}{r} \\
 &= \frac{3 \times 9^2}{6} \\
 &= \underline{\underline{\frac{81}{2}}}
 \end{aligned}$$

$$\begin{aligned}
 28. \quad S &= ut + \frac{1}{2}gt^2 \\
 &= 10 \times 4 + \frac{1}{2} \times 32 \times 4^2 \\
 &= 40 + 256 \\
 &= \underline{\underline{296}}
 \end{aligned}$$

$$\begin{aligned}
 29. \quad W &= I^2R \\
 &= 5^2 \times 100 \\
 &= \underline{\underline{2500}}
 \end{aligned}$$

$$\begin{aligned}
 30. \quad F &= \frac{1}{2}mv^2 \\
 &= \frac{1}{2} \times 10 \times 7^2 \\
 &= \underline{\underline{245}}
 \end{aligned}$$

$$\begin{aligned}
 43. \quad \frac{x+2}{3} + 9 &= 11 \\
 \frac{x+2}{3} &= 11 - 9 \\
 x + 2 &= 2 \times 3 \\
 x &= 6 - 2 \\
 \therefore x &= \underline{\underline{4}}
 \end{aligned}$$

$$\begin{aligned}
 44. \quad \frac{3x+19}{4} + 8 &= 21 \\
 \frac{3x+19}{4} &= 21 - 8 \\
 3x + 19 &= 13 \times 4 \\
 3x &= 52 - 19 \\
 x &= \frac{33}{3} \\
 \therefore x &= \underline{\underline{11}}
 \end{aligned}$$

$$\begin{aligned}
 45. \quad 5 + \frac{2x+3}{3} &= 15 \\
 \frac{2x+3}{3} &= 15 - 5 \\
 2x + 3 &= 10 \times 3 \\
 2x &= 30 - 3 \\
 \therefore x &= \underline{\underline{\frac{27}{2}}}
 \end{aligned}$$

$$\begin{aligned}
 46. \quad 9 + \frac{5x-7}{6} &= 17 \\
 \frac{5x-7}{6} &= 17 - 9 \\
 5x - 7 &= 8 \times 6 \\
 5x &= 48 + 7 \\
 x &= \frac{55}{5} \\
 \therefore x &= \underline{\underline{11}}
 \end{aligned}$$

$$\begin{aligned}
 47. \quad \frac{3x-1}{10} - 9 &= 11 \\
 \frac{3x-1}{10} &= 11 + 9 \\
 3x - 1 &= 20 \times 10 \\
 3x &= 200 + 1 \\
 x &= \frac{201}{3} \\
 \therefore x &= \underline{\underline{67}}
 \end{aligned}$$

$$\begin{aligned}
 48. \quad \frac{13x-9}{3} - 9 &= 19 \\
 \frac{13x-9}{3} &= 19 + 9 \\
 13x - 9 &= 28 \times 3 \\
 13x &= 84 + 9 \\
 \therefore x &= \underline{\underline{\frac{93}{13}}}
 \end{aligned}$$

$$\begin{aligned}
 49. \quad 9 + \frac{7x+3}{2} &= 21 \\
 \frac{7x+3}{2} &= 21 - 9 \\
 7x + 3 &= 12 \times 2 \\
 7x &= 24 - 3 \\
 x &= \frac{21}{7} \\
 \therefore x &= \underline{\underline{3}}
 \end{aligned}$$

$$\begin{aligned}
 50. \quad \frac{9x-33}{17} - 17 &= 3 \\
 \frac{9x-33}{17} &= 3 + 17 \\
 9x - 33 &= 20 \times 17 \\
 9x &= 340 + 33 \\
 \therefore x &= \underline{\underline{\frac{373}{9}}}
 \end{aligned}$$

測驗選解

$$\begin{aligned}
 1. \quad a \times a + b \times b + c \times c \\
 &= \underline{\underline{a^2 + b^2 + c^2}}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad (2 \times p - 3 \times q) \div (4 \times p \times q) \\
 &= (2p - 3q) \div (4pq) \\
 &= \underline{\underline{\frac{2p-3q}{4pq}}}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad \frac{2x+y-z}{3y} &= \frac{2.5+2-6}{3.2} \\
 &= \frac{10+2-6}{6} \\
 &= \frac{6}{6} \\
 &= \underline{\underline{1}}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad \frac{(3x-2y)^2}{x+y-z} &= \frac{(3 \times 5 - 2 \times 2)^2}{5+2-6} \\
 &= \frac{(15-4)^2}{1} \\
 &= \underline{\underline{121}}
 \end{aligned}$$

$$\begin{aligned}
 5. \quad V &= \frac{1}{3} \pi R^2 h \\
 &= \frac{1}{3} \times \frac{22}{7} \times 4^2 \times 21 \\
 &= \underline{\underline{352}}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad B &= (s-a)(s-b)(s-c) \\
 &= (27-16)(27-18)(27-20) \\
 &= 11 \times 9 \times 7 \\
 &= \underline{\underline{693}}
 \end{aligned}$$