# Algebraic Equations in 1 Unknown

# Conventional Questions

**1.    [11-12 Mid-year, 2]**
Carmen has $2x$  $100-notes and  $(3x-1)$  $50-notes.

**(a)**  Find the total amount of the notes in terms of $x$. **(2 marks)**

**(b)**  Hence, find the total amount of money that Carmen has if $x = 3$. **(2 marks)**

**2.    [11-12 Mid-year, 6]**
There are altogether 10 $2.2-stamps and $1.4-stamps.   If the total value of the stamps is $16.4, find the number of $2.2-stamps. **(4 marks)**

**3.    [11-12 Mid-year, 7]**
Solve  $\dfrac{1}{2} - \dfrac{y+5}{4} = \dfrac{y+6}{6}$ . **(3 marks)**

**4.    [11-12 Mid-year, 12]**
Bill and Steve have joined a Mathematics competition. There are 4 papers and each paper consists of 10 true-or-false questions. 20 marks are awarded for each correct answer, while 10 marks are deducted for each wrong or missing answer. The table below shows the numbers of correct answers in different papers.

| Number of correct answers | Paper 1 | Paper 2 | Paper 3 | Paper 4 |
|---|---|---|---|---|
| Bill | 7 | 5 | 2 | 10 |
| Steve | 6 | 7 | 9 | $x$ |

**(a)**  Find the total marks gained by Bill in all four papers. **(2 marks)**
**(b)**  If Bill wins in the competition, suggest **one** possible value of $x$. Then, using your suggested value of $x$, find the total marks gained by Steve. **(3 marks)**

**5.    [12-13 Standardized Test 1]**
Solve  $\dfrac{2}{5} - \dfrac{y+2}{6} = \dfrac{1}{10}$  . **(3 marks)**

**6.    [12-13 Mid-year 6]**
**(a)**  Solve the literal equation  $2ay - 5b = c$  for $y$. **(2 marks)**

**(b)**  Solve  $\dfrac{x+3}{2} - \dfrac{4x-1}{3} = 6$ . **(3 marks)**

**7.    [12-13 Mid-year 9]**
Some books are evenly shared among a group of children. Each of them gets 36 books. If the number of children is reduced by 2, then each of them gets 48 books. How many books are there in total? **(3marks)**

8. **[12-13 Final, 2]**

Solve $3 - \dfrac{3-7p}{4} = \dfrac{5p}{2}$. **(3 marks)**

9. **[13-14 Standardized Test 1]**

Solve $3(4+3y) = \dfrac{10-y}{7}$. **(3 marks)**

10. **[13-14 Final Exam Q5]**

(a) Solve $\dfrac{3m-2}{4} - 10 = \dfrac{5m}{6}$. **(3 marks)**

(b) Hence, or otherwise, solve $\dfrac{3(5n-26)-2}{4} - 10 = \dfrac{5(5n-26)}{6}$. **(2 marks)**

11. **[13-14 Mid-year Exam]**

In 2006, the population of Kwun Tong was 261,000 less than twice the population of Wong Tai Sin. The sum of the population of these two districts was 1,011,000. Find the population of Kwun Tong. **(3 marks)**

12. **[13-14 Mid-year Exam]**

Solve $\dfrac{3}{2} - \dfrac{9x-1}{4} = \dfrac{1-4x}{6}$. **(3 marks)**

13. **[14-15 Mid-year Exam]**

Solve $\dfrac{x+1}{2} - \dfrac{1-x}{5} = \dfrac{x}{3}$. **(3 marks)**

14. **[13-14 Mid-year Exam Q13]**

Refer to **Table 1**, $A$ and $B$ are two numbers. Twice the sum of the numbers in column 1 equals three times the sum of that in column 2.

(a) Express $B$ in terms of $A$. **(2 marks)**

(b) If the sum of the numbers in row 1 is twice the sum of that in row 2, write down the value of $B$. **(1 mark)**

|  | Column 1 | Column 2 |
|---|---|---|
| Row 1 | 55 | $A$ |
| Row 2 | $B$ | 30 |

**Table 1**

15. **[15-16 Mid-year Exam Q6]**

The length of a rectangle is 5 cm more than twice of its width. Find the width and the length of the rectangle if the perimeter of the rectangle is 70 cm. **(4 marks)**

16. **[15-16 Mid-year Exam Q8]**

Solve $\dfrac{x}{2} - 2(x-4) = \dfrac{x}{3} - 3$. **(3 marks)**

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