

## 1

## Arithmetic Operations 算術運算

## A. Four Basic Arithmetic Operations 四則運算

Operation 運算	Expression 算式	Word Phrase 文字表達	Result 結果
Addition 加法	$4 + 5$	Add 5 to 4 (or 4 plus 5) 4 加上 5	The sum is 9. 所得的和是 9。
Subtraction 減法	$9 - 7$	Subtract 7 from 9 (or 9 minus 7) 從 9 減去 7	The difference is 2. 所得的差是 2。
Multiplication 乘法	$6 \times 5$	Multiply 6 by 5 (or 6 times 5) 6 乘以 5	The product is 30. 所得的積是 30。
Division 除法	$18 \div 6$	Divide 18 by 6 18 除以 6	The quotient is 3. 所得的商是 3。

The following are some rules in performing mixed operation.

以下為一些進行混合運計算時的法則。

- If an expression contains brackets, perform the operations inside the brackets first.  
若算式包含括號，應先處理括號內的運算。
- (a) If an expression involves addition and subtraction only (or multiplication and division only), perform the operation from left to right.  
若算式只涉及加法和減法 (或只涉及乘法和除法)，則應從左至右進行運算。  
(b) Otherwise, perform multiplication and division before addition and subtraction.  
否則，應先進行乘法和除法的運算，然後再進行加法和減法的運算。



## Example 1

Find the value of each of the following expressions.

求下列各算式的值。

(a)  $16 + 24 - 32$

(b)  $9 \times 2 + 24 \div 4$

## Solution

(a)  $16 + 24 - 32 = 40 - 32$   
 $= 8$

◀ Perform the operations from left to right.  
由左至右計算。

(b)  $9 \times 2 + 24 \div 4 = 18 + 6$   
 $= 24$

◀ Perform the multiplication and the division first.  
先處理乘法和除法運算。



### Example 2

Write the following word phrases as arithmetic expressions, and calculate the answers.

把下列各題的文字寫成算式，並計算結果。

(a) Multiply 6 by the sum of 2 and 3.

6 乘以 2 與 3 的和。

(b) Subtract 18 from 42, and then divide the difference by 4.

從 18 減去 42，並把所得的差除以 4。

### Solution

$$\begin{aligned} \text{(a)} \quad 6 \times (2 + 3) &= 6 \times 5 \\ &= \underline{\underline{30}} \end{aligned}$$

◀ Perform the operation inside the brackets first.  
先計算括號內的運算。

$$\begin{aligned} \text{(b)} \quad (42 - 18) \div 4 &= 24 \div 4 \\ &= \underline{\underline{6}} \end{aligned}$$



### Example 3

52 books are packed evenly into 6 plastic boxes. How many books are there in each plastic box?

How many books are left?

把 52 本書平均放進 6 個膠箱。每個膠箱有多少本書？還剩下多少本書？

### Solution

$$\begin{array}{r} \phantom{6} \overline{) 52} \\ \underline{48} \phantom{0} \\ 4 \phantom{0} \end{array}$$

divisor ▶ 6    8 ◀ quotient  
                  ▶ 52 ◀ dividend  
                  4    ◀ remainder

Short division

$$\begin{array}{r} 6 \overline{) 52} \\ \underline{48} \phantom{0} \\ 8 \dots 4 \end{array}$$

$$\begin{array}{r} \phantom{6} \overline{) 52} \\ \underline{48} \phantom{0} \\ 4 \phantom{0} \end{array}$$

除數 ▶ 6    8 ◀ 商  
                  ▶ 52 ◀ 被除數  
                  4    ◀ 餘數

$$\therefore 52 \div 6 = 8 \dots 4$$

$$\therefore 52 \div 6 = 8 \dots 4$$

∴ There are 8 books in each plastic box, and 4 books are left.

∴ 每個膠箱有 8 本書，還剩下 4 本書。

**Note:** The symbol ‘∴’ means ‘because’, while the symbol ‘∵’ means ‘therefore’.

符號「∴」的意思是「由於」，而符號「∵」的意思是「因此」。



The remainder must be less than the divisor.  
餘數必定小於除數。

## B. Multiples and Factors 倍數和因數

Mathematical term 數學詞彙	Example 例子
<b>Multiple</b> 倍數	(i) 6, 12, 18, 24, ... are <b>multiples</b> of 6. (ii) 8, 16, 24, 32, ... are <b>multiples</b> of 8.
<b>Common multiple</b> 公倍數	24, 48, 72, ... are <b>common multiples</b> of 6 and 8.
<b>Least Common Multiple (L.C.M.)</b> 最小公倍數 (L.C.M.)	24 is the <b>L.C.M.</b> of 6 and 8.
<b>Factor</b> 因數	(i) 1, 2, 4 and 8 are the <b>factors</b> of 8. (ii) 1, 2, 3, 4, 6 and 12 are the <b>factors</b> of 12.
<b>Common factor</b> 公因數	1, 2 and 4 are the <b>common factors</b> of 8 and 12.
<b>Highest Common Factor (H.C.F.)</b> 最大公因數	4 is the <b>H.C.F.</b> of 8 and 12.



### Example 5

Write down the first four multiples of 12 and 16, and find the L.C.M. of the two numbers.

寫出 12 和 16 的首四個倍數，並求這兩個數的最小公倍數。

#### Solution

First four multiples of 12: 12, 24, 36 and **48**

12 的首四個倍數：12，24，36，**48**

First four multiples of 16: 16, 32, **48** and 64

16 的首四個倍數：16，32，**48**，64

∴ L.C.M. of 12 and 16 = 48

∴ 12 和 16 的最小公倍數 = 48



### Example 6

Write down the factors of 20, 45 and 50, and find the H.C.F. of the three numbers.

寫出 20、45 和 50 的因數，並求這三個數的最大公因數。

#### Solution

Factors of 20: 1, 2, 4, **5**, 10 and 20

$$\begin{aligned} 20 &= 1 \times 20 \\ &= 2 \times 10 \\ &= 4 \times 5 \end{aligned}$$

20 的因數：1，2，4，**5**，10，20

Factors of 45: 1, 3, **5**, 9, 15 and 45

45 的因數：1，3，**5**，9，15，45

Factors of 50: 1, 2, **5**, 10, 25 and 50

50 的因數：1，2，**5**，10，25，50

∴ H.C.F. of 20, 45 and 50 = 5

∴ 20、45 和 50 的最大公因數 = 5



### Example 7

A box of candies can be evenly divided among either 6 or 8 kids. What is the minimum number of candies in the box?

糖果一盒，可平均分給 6 名或 8 名小孩。問盒中最少有糖果多少粒？

#### **Solution**

Multiples of 6: 6, 12, 18, **24**, ...

Multiples of 8: 8, 16, **24**, ...

∴ L.C.M. of 6 and 8 = 24

∴ The minimum number of candies in the box is 24.

6 的倍數：6，12，18，**24**，...

8 的倍數：8，16，**24**，...

∴ 6 和 8 的最小公倍數 = 24

∴ 盒中最少有糖果 24 粒。



### Knowing More

#### **Prime Factors** 質因數

Consider the factors of 12. The factors are 1, 2, 3, 4, 6 and 12. Among these factors, 2 and 3 are prime numbers. Therefore, 2 and 3 are called prime factors of 6.

考慮 12 的因數。12 的因數有 1、2、3、4、6 和 12。2 和 3 既是質數，又是 12 的因數。

因此，2 和 3 稱為 12 的質因數。

Every composite number can be expressed as products of prime factors.

每個合成數均可寫成質因數連乘式。

For example, 90 can be expressed as product of prime factors as follow:

例如，90 寫成質因數連乘式如下：

$$90 = 2 \times 3 \times 3 \times 5$$

Short division is useful to find all the prime factors of a number.

2	90
3	45
3	15
	5

### Index Notation 指數記數法

For simplicity, we can write the expression  $3 \times 3 \times 3 \times 3$  as  $3^4$ , read as '3 to the power 4'. This kind of expression is called index notation.

為簡單起見，數式  $3 \times 3 \times 3 \times 3$  可寫成  $3^4$ ，讀作「3 的 4 次方」。這種寫法稱為指數記數法。

Expression 數式	Index notation 指數記數法		
	Expressed as 可寫成	Read as 讀作	
$3 \times 3$	$3^2$	the square of 3 or 3 to the power 2	3 的平方 或 3 的 2 次方
$3 \times 3 \times 3$	$3^3$	the cube of 3 or 3 to the power 3	3 的立方 或 3 的 3 次方
$3 \times 3 \times 3 \times 3$	$3^4$	the 4th power of 3 or 3 to the power 4	3 的 4 次方
$3 \times 3 \times 3 \times 3 \times 3$	$3^5$	the 5th power of 3 or 3 to the power 5	3 的 5 次方

In  $3^4$ , 3 is called the base and 4 is called the index or exponent.

在  $3^4$  中，3 稱為底而 4 稱為指數。

$$3 \times 3 \times 3 \times 3 = 3^4$$

Similarly,  $2 \times 3 \times 3 \times 5$  can be written as  $2 \times 3^2 \times 5$  in index notation.

同樣地，利用指數記數法， $2 \times 3 \times 3 \times 5$  可寫成  $2 \times 3^2 \times 5$ 。

### Key Terms / Phrases



addition	加法	difference	差	factor	因數
subtraction	減法	product	積	common factor	公因數
multiplication	乘法	quotient	商	highest common factor	最大公因數
division	除法	dividend	被除數	prime number	質數
plus	加	divisor	除數	composite number	合成數
minus	減	remainder	餘數	prime factor	質因數
times	乘	multiple	倍數	index notation	指數記數法
divide	除	common multiple	公倍數	base	底
sum	和	least common multiple	最小公倍數	index / exponent	指數



## Useful Sentences

What is the <u>product</u> of 5 and 3?	5 和 3 的積是多少?
<u>Divide</u> 6 by 3, and then subtract 1 from the <u>quotient</u> .	把 6 除以 3, 然後把所得的商減去 1。
Is 1485 <u>divisible</u> by 3?	1485 可被 3 整除嗎?
My brother's age is <u>twice</u> my age.	哥哥的年齡是我的兩倍。
The <u>sum</u> of two <u>consecutive numbers</u> is 29.	兩個連續數的和是 29。
The <u>square</u> of 8 is 64.	8 的平方是 64。
<u>Evaluate</u> the following <u>expressions</u> .	計算下列各數式。

## Exercise 1

Write the following word phrases as arithmetic expressions, and calculate the answers. (1 – 9)

- Add seventy to twelve. \_\_\_\_\_
- Subtract one hundred and six from two thousand. \_\_\_\_\_
- 97 minus 48 plus 23. \_\_\_\_\_
- 30 times 5 minus 38. \_\_\_\_\_
- Multiply the sum of 12 and 4 by 8. \_\_\_\_\_
- Divide the sum of 35 and 17 by 13. \_\_\_\_\_
- Subtract 14 from 30 and then add 20 to the result. \_\_\_\_\_
- Add the product of 16 and 4 to the quotient of 28 divided by 4. \_\_\_\_\_
- The difference between 50 and the quotient of 45 divided by 9. \_\_\_\_\_

Evaluate the following expressions. (10 – 17)

- |                                 |       |                                 |       |
|---------------------------------|-------|---------------------------------|-------|
| 10. $67 + 22 - 79$              | _____ | 11. $25 \times 14 \div 5$       | _____ |
| 12. $5 + 144 \times 23$         | _____ | 13. $342 - 26 \times 7$         | _____ |
| 14. $15 \times 33 - 636 \div 2$ | _____ | 15. $(42 - 18) \div 2 \times 3$ | _____ |
| 16. $(38 + 46) - (24 + 19)$     | _____ | 17. $(128 + 64 \div 8) \div 4$  | _____ |

Determine whether the following are true or false. (18 – 21)

- |  | <b>True</b>              | <b>False</b>             |
|--|--------------------------|--------------------------|
| 18. The divisor in the expression $54 \div 9$ is 54.                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. The product of two <i>even numbers</i> is an <i>odd number</i> . | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. 50 is a multiple of 50.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. 33 is a factor of 132.   | <input type="checkbox"/> | <input type="checkbox"/> |

22. Find the L.C.M. of the following sets of numbers.
- |            |       |                |       |
|------------|-------|----------------|-------|
| (a) 7, 8   | _____ | (b) 18, 24     | _____ |
| (c) 30, 50 | _____ | (d) 15, 20, 40 | _____ |
23. Find the H.C.F. of the following sets of numbers.
- |            |       |                |       |
|------------|-------|----------------|-------|
| (a) 24, 30 | _____ | (b) 20, 36     | _____ |
| (c) 27, 54 | _____ | (d) 12, 18, 60 | _____ |

Solve the following problems. (24 – 27)

24. Find the sum of two *consecutive numbers* if the smaller one is 43. \_\_\_\_\_
25. A *dozen* pack of noodles costs \$36. Tony buys 5 packs of them. How much should he pay? \_\_\_\_\_
26. Soya milk costs \$8 per *litre*. If Peter has \$100 and wants to buy 17 litres soya milk, how much more money does he need? \_\_\_\_\_
27. 3 bags of rice weigh 15 kg in total. 2 bottles of cooking oil weigh 6 kg in total. How much heavier is a bag of rice than a bottles of cooking oil? \_\_\_\_\_

Solve the following problems. Show your working steps clearly. (28 – 31)

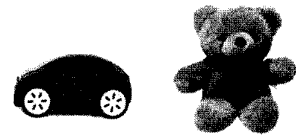
28. Candies cost \$84 per 6 kg. Apple juice costs \$8 per pack. Find the cost for 4 kg candies and 12 packs of apple juice.

.....

determine 判斷 even number 偶數 odd number 奇數 consecutive numbers 連續數 dozen 一打 litre 公升

29. 1 orange costs \$4 and 1 watermelon costs \$48. Martha pays \$200 for 6 oranges and 2 watermelons. How much *change* should she get?

30. 80 toy cars and 64 teddy bears are shared evenly among some children. Each child gets the same numbers of toy cars and teddy bears as the others. What is the *maximum* number of children?



31. In a ferry pier, ferries *set off* for islands *A*, *B* and *C* every 25, 45 and 75 minutes respectively. At 10:00 a.m., ferries set off from the pier for all the three islands. When will they set off again at the same time if the ferry services end at 11:00 p.m. every day? *List* all the *possible* cases.




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change 找回的零錢    maximum 最大的    set off 出發    list 列出    possible 可能的



## 4

## Basic Algebra and Simple Equations

## 基礎代數與簡易方程

## A. Introduction to Algebra 認識代數

Mathematical term 數學詞彙	Meaning 意義	Example 例子
Algebraic symbol 代數符號	A symbol representing a value. We often use English letters as algebraic symbols. 代表某數值的符號。我們常用英文字母作為代數符號。	$x, y, z$
Algebraic expression 代數式	An expression that contains one or more algebraic symbols. 包含一個或以上代數符號的數式。	$7y - 5, \frac{3x}{2}, 8a^2$

Word phrase 文字描述	Algebraic expression 代數式
Add 2 to $a$ $a$ 加上 2	$a + 2$
The sum of $x$ and $b$ $x$ 與 $b$ 的和	$x + b$
Subtract $u$ from $w$ 從 $w$ 減去 $u$	$w - u$
3 times $a$ 3 乘以 $a$	$3a$ ( $3a$ represents $3 \times a$ .)
The product of $x$ and $2y$ $x$ 與 $2y$ 的積	$2xy$
Divide $c$ by 6 $c$ 除以 6	$\frac{c}{6}$ ( $\frac{c}{6}$ represents $c \div 6$ .)
One-fourth of $m$ minus 2 從 $m$ 的四分之一減去 2	$\frac{m}{4} - 2$
The square of $t$ $t$ 的平方	$t^2$



### Example 1

Represent the following word phrases by algebraic expressions.

用代數式表示下列各句子。

- (a) Add 3 to the product of  $y$  and 4.  
把  $y$  與 4 的積加上 3。
- (b) Divide the square of  $c$  by 5 and then add 4 to the result.  
 $c$  的平方除以 5 後，把所得的結果加上 4。

### Solution

- (a) The required algebraic expression

所求的代數式

$$= y \times 4 + 3$$

$$= \underline{\underline{4y + 3}} \quad \blacktriangleleft 4y \text{ represents } y \times 4. \quad 4y \text{ 表示 } y \times 4。$$

- (b) The required algebraic expression

所求的代數式

$$= c^2 \div 5 + 4$$

$$= \underline{\underline{\frac{c^2}{5} + 4}} \quad \blacktriangleleft \frac{c^2}{5} \text{ represents } c^2 \div 5. \quad \frac{c^2}{5} \text{ 表示 } c^2 \div 5。$$



### Example 2

There are 5 bags of chocolates in a box and each bag of chocolates weighs  $x$  g.

某盒子內有 5 包巧克力，每包巧克力重  $x$  g。

- (a) What is the total weight of 5 bags of chocolates?  
問 5 包巧克力的總重量是多少？
- (b) The box of chocolates are shared among 9 students evenly and no chocolates are left. What is the weight of chocolates does each student get?  
現把該盒巧克力平分給 9 名學生，且沒有剩餘巧克力。問每名學生可分得的巧克力的重量是多少？

### Solution

- (a) Total weight of 5 bags of chocolates

5 包巧克力的總重量

$$= 5 \times x \text{ g}$$

$$= \underline{\underline{5x \text{ g}}}$$

- (b) Weight of chocolates that each student gets

每名學生可分得的巧克力的重量

$$= 5x \div 9 \text{ g}$$

$$= \underline{\underline{\frac{5x}{9}}} \text{ g}$$

## B. Simple Equations 簡易方程

An equality that contains an unknown is called an equation. For example,  $x + 2 = 5$  is an equation with an unknown  $x$ .

含有未知數的等式稱為方程。例如， $x + 2 = 5$  是一個含有未知數  $x$  的方程。



### Example 3

Solve  $x - 5 = 13$ .

解  $x - 5 = 13$ 。

#### Solution

$$x - 5 = 13$$

$$x - 5 + 5 = 13 + 5$$

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

◀ Add 5 to both sides of the equation.  
方程的左右兩方同時加上 5。



### Example 4

Solve  $3y + 6.5 = 9.8$ .

解  $3y + 6.5 = 9.8$ 。

#### Solution

$$3y + 6.5 = 9.8$$

$$3y + 6.5 - 6.5 = 9.8 - 6.5$$

$$3y = 3.3$$

$$\frac{3y}{3} = \frac{3.3}{3}$$

$$y = \underline{\underline{1.1}}$$

◀ Subtract 6.5 from both sides of the equation.  
方程的左右兩方同時減去 6.5。

◀ Divide both sides of the equation by 3.  
方程的左右兩方同時除以 3。

**Example 5**Solve  $5(z-7) = 40$ .解  $5(z-7) = 40$ 。**Solution**

$$5(z-7) = 40$$

$$\frac{5(z-7)}{5} = \frac{40}{5}$$

$$z-7 = 8$$

$$z-7+7 = 8+7$$

$$z = \underline{\underline{15}}$$

◀ Divide both sides of the equation by 5.  
方程的左右兩方同時除以 5。◀ Add 7 to both sides of the equation.  
方程的左右兩方同時加上 7。**C. Application of Equations 方程的應用**

Steps of setting up an equation to solve a problem:

1. Identify the unknown in the problem.
2. Represent the unknown by a letter.
3. Set up an equation based on the given information.
4. Solve the equation.
5. Write down the answer to the problem.

建立方程來解決問題的步驟：

1. 確定問題中的未知數。
2. 用字母代表未知數。
3. 依題意建立方程。
4. 解方程。
5. 寫出問題的答案。

**Example 6**

There are  $y$  passengers on a bus. After  $\frac{2}{5}$  of them get off, 33 passengers remain on the bus. Set up an equation to represent the situation.

巴士上有  $y$  名乘客，其中的  $\frac{2}{5}$  下車後，車上還有乘客 33 名。試建立一個方程表示上述情況。


**Solution**

$$\begin{aligned} \text{The fraction of passengers remained} &= 1 - \frac{2}{5} \\ &= \frac{3}{5} \end{aligned}$$

$$\therefore \text{ The required equation is } \frac{3}{5}y = 33.$$

$$\begin{aligned} \text{餘下乘客所佔的分數} &= 1 - \frac{2}{5} \\ &= \frac{3}{5} \end{aligned}$$

$$\therefore \text{ 所求的方程是 } \frac{3}{5}y = 33.$$

 **Example 7**

There are 15 chickens and  $n$  pigs in a farm. Altogether they have 98 feet. Find the value of  $n$ .  
 已知農場裏有 15 隻雞和  $n$  頭豬，而牠們共有 98 隻腳。求  $n$  的值。

**Solution**

Based on the given information, we can set up an equation as follows:

依題意，我們可建立以下的方程：

$$2 \times 15 + 4 \times n = 98$$

$$30 + 4n = 98$$

$$30 + 4n - 30 = 98 - 30$$

$$4n = 68$$

$$\frac{4n}{4} = \frac{68}{4}$$

$$n = \underline{\underline{17}}$$

◀ A chicken has two feet and a pig has four.  
 1 隻雞有 2 隻腳，而 1 頭豬有 4 隻腳。

	Number 數目	Number of feet 腳的數目
Chicken 雞	15	$2 \times 15$
Pig 豬	$n$	$4n$

 **Example 8**

Leo has eight \$0.5 coins and some \$0.2 coins. If these coins can just exchange for two \$10 banknotes, how many \$0.2 coins does Leo have?

小明有 8 枚 5 角硬幣和若干枚 2 角硬幣。若這些硬幣剛好可兌換 2 張 10 元鈔票，問小明有 2 角硬幣多少枚？

**Solution**

Let  $x$  be the number of \$0.2 coins that Leo has.

設小明有  $x$  枚 2 角硬幣。

$$0.5 \times 8 + 0.2 \times x = 2 \times 10$$

$$4 + 0.2x = 20$$

$$4 + 0.2x - 4 = 20 - 4$$

$$0.2x = 16$$

$$\frac{0.2x}{0.2} = \frac{16}{0.2}$$

$$x = 80$$

◀

Type of coins 硬幣種類	Number of coins 硬幣數目	Value of the coins 硬幣總額
\$ 0.5	8	$\$0.5 \times 8$
\$ 0.2	$x$	$\$0.2x$

∴ Leo has 80 \$0.2 coins.

小明有 80 枚 2 角硬幣。



### Key Terms / Phrases

algebra	代數	unknown	未知數	let	設
algebraic symbol	代數符號	equation	方程		
algebraic expression	代數式	solve	解		

### Useful Sentences

Which of the following are <u>algebraic expression</u> ?	下列哪些是代數式？
Set up an <u>equation</u> in $x$ .	建立一個以 $x$ 為未知數的方程。
<u>Express</u> the total area of the figure in terms of $y$ .	以 $y$ 表示圖形的總面積。
The number equals half the product of $b$ and $c$ .	該數等於 $b$ 與 $c$ 的積的一半。
Find the value of the <u>unknown</u> in each equation.	求各方程中的未知數的值。
The number of boys is half that of the girls in the class.	班中男生人數是女生人數的一半。
Find how many more boys than girls there are.	求男生比女生多出的數目。
My uncle's age is 4 times that of his son.	伯父的年齡是他的兒子的四倍。
What are their present ages?	他們現年多少歲？

## Exercise 4

1. In each of the following, determine whether it is an algebraic expression or an equation.  
Put a '✓' in the *appropriate* box.

	Algebraic expression	Equation
(a) $5b + 4$		
(b) $7c + 3 = 17$		
(c) $3d^2 + 8d = 1$		
(d) $x^2 - 100$		
(e) $\frac{2}{3}m - 6n = 7$		

appropriate 適當的

Represent the following word phrases by algebraic expressions. (2 – 5)

2. Add  $a$  to 10.

\_\_\_\_\_

3. Subtract  $b$  from 7.

\_\_\_\_\_

4. Multiply 5 by  $c$ .

\_\_\_\_\_

5. Divide 4 by  $d$ .

\_\_\_\_\_

Fill in the blanks with suitable algebraic expressions. (6 – 10)

6. The old bus fare is \$5.5. It is increased by \$ $a$ . The new bus fare is \$\_\_\_\_\_.

7. Henry weighs  $b$  kg. He is 10 kg heavier than his friend. Henry's friend weighs \_\_\_\_\_ kg.

8. Each box contains  $y$  cakes. If Betty buys 3 boxes of cakes, then she has \_\_\_\_\_ cakes.

9. A bag contains 50 sweets. It is shared among  $k$  children evenly and no sweets are left. Each child gets \_\_\_\_\_ sweets.

10. If the length of a square is  $m$  cm, then the total area of 25 squares is \_\_\_\_\_  $\text{cm}^2$ .

Solve the following equations. (11 – 22)

11.  $a + 13 = 20$        $a =$  \_\_\_\_\_

12.  $b - 50 = 123$        $b =$  \_\_\_\_\_

13.  $3c = 57$        $c =$  \_\_\_\_\_

14.  $\frac{d}{5} = 12$        $d =$  \_\_\_\_\_

15.  $7e - 27 = 36$        $e =$  \_\_\_\_\_

16.  $4f + 21 = 41$        $f =$  \_\_\_\_\_

17.  $3(g + 7) = 36$        $g =$  \_\_\_\_\_

18.  $\frac{h-3}{4} = 8$        $h =$  \_\_\_\_\_

19.  $0.7w = 4.9$        $w =$  \_\_\_\_\_

20.  $\frac{x}{2.6} = 1.5$        $x =$  \_\_\_\_\_

21.  $5y + 1.9 = 9.4$        $y =$  \_\_\_\_\_

22.  $\frac{z-0.23}{6} = 0.73$        $z =$  \_\_\_\_\_

Set up an algebraic equation to represent each of the following situations. (23 – 28)

23. Nicole has  $x$  stamps and Tom has 25 stamps. They have 59 stamps altogether. \_\_\_\_\_

24. Annie is 15 years old now. She was  $y$  years old last year. \_\_\_\_\_

25. There are  $p$  dogs and 12 cats. There are 7 more dogs than cats. \_\_\_\_\_

26. The hourly wage of Peter is \$130. He worked for  $z$  hours last week and earned \$3380. \_\_\_\_\_

27. Each exercise book costs \$ $d$ . Kive has \$100. After buying 4 exercise books, Kive has \$16 left. \_\_\_\_\_

28. The length of a rectangle is 12 cm. The width of the rectangle is shorter than its length by  $a$  cm. The perimeter of the rectangle is 42 cm. \_\_\_\_\_

Solve the following problems using equations. Show your working steps clearly. (29 – 33)

29. 3 times 17 is equal to the sum of  $t$  and 16. What is the value of  $t$ ?

30. Edward has a pack of sweets. After eating 9 sweets, he gives away the rest to 8 of his friends. If each friend gets 7 sweets, how many sweets are there *originally*?

.....  
originally 原來



31. Five bottles of milk cost \$4.4 more than four bottles of juice. If one bottle of milk costs \$5.2, find the cost of one bottle of juice.

32. Four years ago, the age of Paul was twice that of John. John is 18 years old now. How old is Paul now?

33. Miss Cheung spends  $\frac{1}{8}$  of her *savings* on personal *ornaments* and  $\frac{5}{6}$  on clothing.  
If her savings still has \$130 left, find the original amount of her savings.



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savings 儲蓄    ornament 飾物