



## Problem of the Week

### Problem B

#### Confusion Rules

- a) Tian and Mary disagree about the value of the expression  $6 \times 4 - 8 \div 2 + 5$ .

Tian thinks it should be 13, but Mary says it should be 25. Try to explain how each of them arrived at their answer.

- b) The expression  $6 \times 4 - 8 \div 2 + 5$  mixes the operations of addition and subtraction with that of multiplication and division. To avoid confusion in evaluating expressions like these, a special rule is followed: “**Perform all multiplication and division first. Then perform all the addition and subtraction.**”

To help keep things straight, we can put brackets around the terms involving multiplication or division. The above expression could be written  $(6 \times 4) - (8 \div 2) + 5$ .

If the special rule is followed in the expression  $6 \times 4 - 8 \div 2 + 5$ , which student, Tian or Mary, has the correct answer?

- c) Evaluate each of the following expressions using the special rule.

- (i)  $6 \div 3 + 4 - 2 \times 2 + 5$   
(ii)  $2 \times 3 \times 4 - 11 - 6 \times 2 + 20 \div 5$   
(iii)  $0.5 \times 24 + 15 \div 5 - 13$

#### Extension:

Find the values of A and B so that each of the following expressions equals zero.

- (i)  $22 \div 11 + 3 \times A - 7 \times 2$   
(ii)  $24 \div B - 2 \times 3 + 7 - 3 \times 3$

