Setting up equalities

We will review the skill of getting simple equality, or setting up equations. This is useful in situations we need to answer the question by solving certain equations.

What should we look for?

In addition to looking for the key words indicating the operations involved, we also pay attention to the words representing the equality (such as the words "is", "are", "equals" or "equal to ", among others). The table below gives some such examples. (Once again, we use x to denote the unknown quantity).

Verbal Expressions	Algebraic equalities
The sum of a number and sixteen is twenty seven	$x + 16 = 27$
Thirty six is equal to the product of nine and some number	$36 = 9x$
The difference of a number and seven is equal to sixty three	$x - 7 = 63$
Eight is equal to the quotient of ninety six and a number	$8 = 96/x$

Table: Correspondence between words and equalities

Time to practice In each of the exercises below, write an equality to present the verbal expressions.

Exercise 1: If a number is increase by 12, the result is 29. (Answer: $x + 12 = 29$).

Exercise 2: Six less than twice a number is 10 (Answer: $2x - 6 = 10$).

Exercise 3: Maria is three times as old as her son. The sum of their edges is 48 years. (Let x represent the age of Maria's son. Then Maria's age is $3x$. Answer: $x + 3x = 48$, or $4x = 48$).

Exercise 4: A number is 6 more than another number. The sum of the larger number and twice of the smaller number is 27. Find an equation that will allow us to know what these numbers are. (Let x denote the smaller (another number). Then the bigger is 6 more than x, or $x + 6$. Answer: $2x + (x + 6) = 27$, and so $x = 7$).

Exercise 5: Together, Marc and Mike purchased a hamburger franchise for $72000. Mike's part was $18000 more tahn Marc's. Find an equation that will allow us to know how much each of them invested. (Let x denote Marc's share. Then Mike's part is $x + 18000$. (Answer: $x + (x + 18000) = 72000$, and so $x = 27000$ dollars. Thus Marc invested $27000 and Mike $45000).