**Supplementary Notes on Teaching Percentage**

Some pupils find difficulty in solving percentage problems such as the following:

*Limei’s score for a mathematics test was 5% higher than her score for an English test. If Limei scored 84 marks for the mathematics test, how many marks did she score for the English test?*

To solve the problem, the pupils must understand the meaning of the following statements:

**The mathematics score was 5% higher than the English score**

*means*

The mathematics score was higher than the English score by 5% of the English score.

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Feb 2002
We may use the part-whole model to illustrate the point as follows:

That is, the mathematics score is 105% of the English score.

The problem can be solved using the unitary method.

The solution is:

\[
\begin{align*}
105\% \text{ of English score} & = 84 \text{ marks} \\
1\% \text{ of English score} & = \frac{84}{105} \text{ marks} \\
100\% \text{ of English score} & = \frac{84}{105} \times 100 \\
& = 80 \text{ marks}
\end{align*}
\]

She scored 80 marks for her English test.
Some pupils may have the following wrong concepts:

(1) As the usual maximum score for a test is 100 marks, 84 marks may be wrongly interpreted as 84%. Thus the following solution is wrong:

Mathematics score is 5% higher than the English score.

So English score = 84% - 5% = 79%.

She scored 79 marks for her English test.
(2) The math score is 5% higher than the English score is wrongly taken to be the same as:

The English score was 5% less than the Maths score.

Thus the following solution is also wrong:

5% of 84 = 4.2

84 - 4.2 = 79.8 ≈ 80

She scored 80 marks for her English test.

In this case, the pupils get the “right” answer by chance.

(IN PSLE, no marks will be awarded for this solution.)

Teachers should discuss with their pupils to help them clarify these wrong concepts.