PROFESSOR B ALGEBRA
SAMPLE LESSON #2

Subtraction with Integers

Let us use addition to find the answer to a subtraction.
Look at the following:

$$7 - 2 = ?$$

Tell learners that

1. when you touch the question sign, they must ask "What…";
2. when you touch the "+" sign, they must continue asking, "…do I add…";
3. when you touch the "2", they must continue asking, "…to two…"; and
4. when you touch the "7", they must continue asking, "…to get seven?"

Tell the learners to ask the question smoothly: "What do I add to two to get seven?"
Ask, "What is the answer to the question?"

Repeat the above activity, in exactly the same way, to lead the learners through the following examples:

$9 - 5 = ?$ $\qquad$ $10 - 7 = ?$ $\qquad$ $5 - 3 = ?$

Emphasize to learners that they are using addition to get the answers to subtraction problems.

Look at the following:

$$(+7) - (+2) = ?$$

For this subtraction, tell your learners that

1. when you touch the question sign, they must ask, "What…";
2. when you touch the "+" sign, they must continue asking, "…do I combine…";
3. when you touch the "+2", they must continue asking, "…with having two dollars…";
4. when you touch the "+7", they must continue asking, "…to end up having seven dollars?"

Tell learners to ask the question smoothly: "What do I combine with having two dollars to end up having seven dollars?"
Ask the learners, "If you start with having two dollars and you end up having seven dollars, does your situation become better or worse?"
So if you start with having two dollars, should you get more money or owe money to end up having seven dollars?
Elicit from learners that they must get \$5 more (+5) to end up having \$7 (+7).
Conclude that $(+7) - (+2) = +5$.

PROFESSOR B ALGEBRA
SAMPLE LESSON #2 (Continued)

Look at the following:

$$(+7) \; - \; (-2) \; = \; ?$$

In a manner similar to the above example, elicit the addition question: "What do I combine with owing two dollars to end up having seven dollars?"
Ask the learners, "If you start with owing two dollars and you end up having seven dollars, does your situation become better or worse?"
So if you start with owing two dollars, should you get money or owe more money to end up having seven dollars?
Elicit from learners that they must get $9 (+9) so that when they pay the $2 they owe (–2), they end up having $7 (+7).
Conclude that $(+7) - (-2) = +9$.

Look at the following:

$$(-7) \; - \; (-2) \; = \; ?$$

In a manner similar to the above examples, elicit the addition question: "What do I combine with owing two dollars to end up owing seven dollars?"
Ask the learners, "If you start with owing two dollars and you end up owing seven dollars, does your situation become better or worse?"
So if you start with owing two dollars, should you get money or owe more money to end up owing seven dollars?
Elicit from learners that they must owe $5 more (–5) to end up owing $7 (–7).
Conclude that $(-7) - (-2) = -5$.

Look at the following:

$$(-7) \; - \; (+2) \; = \; ?$$

Elicit the addition question: "What do I combine with having two dollars to end up owing seven dollars?"
Ask the learners, "If you start with having two dollars and you end up owing seven dollars, does your situation become better or worse?"
So if you start with having two dollars, should you get more money or owe money to end up owing seven dollars?
Elicit from learners that they must owe $9 (–9) so that when they pay with the $2 they have, they will still owe $7 (–7).
Conclude that $(-7) - (+2) = -9$.