

A NEW SCHEME IN TESTING

A Report by Marshall P. Bye

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Dr. MacPherson, in addressing participants at the Northwest Mathematics Conference in Vancouver, spoke of new schemes in testing. He described a new type of test that will gain popularity as the accessibility of computers increases. He suggests this new test is an outgrowth of the work done by Bloom and Krathwohl.

The purpose of any one instrument will be to test the "level" in the taxonomy of educational objectives which a particular student has gained.

The instrument will be made up of 15 items, scaled for a certain area of study and for a certain population. The following five items would scale for general mathematical knowledge.

- (a) 2×3
- (b) 17×1901
- (c) $(2x + 1)(3x^2 + 2x + 1)$
- (d) $(4i + 3) - (2i + 1)$
- (e) $\int_{-2}^2 2x + 3$

Any student who could do item (c) could do items (a) and (b). Any student able to do item (e) could do all the items. Applying the principle to 15 items, the student is given question 8 first. If he is correct, then it is held he can do the first seven questions also. Next he will be given question 12. If he is incorrect, he presumably cannot do questions 13 through 15. Next he is given question 10. If correct, it is held that he can do question 9. He is then given question 11. This question now determines whether he is at level question 10 or level question 11. Therefore, in four questions the student has been scaled.

Dr. MacPherson maintained that through the use of the computer, very reliable and valid instruments could be devised for any population stated and for any topic desired. As an example of a set of test items which may scale for some populations along understanding of the distributive principle are the following six items:

1. $8 \times 13 = 104$

How much is 16×13 ?

2. Which of these examples could be worked by multiplication?

(a) $\begin{array}{r} 41 \\ + 4 \end{array}$

(b) $92 + 92 + 92$

(c) $\frac{5}{8} + \frac{3}{8} + \frac{1}{8}$

3. It is true that $176 \times 7 = 1232$.

How much is 178×7 ?

4. Which of the following will give the same answer as 15×38 ?

(a) $(15 \times 40) - 2$

(b) $(10 \times 38) + (5 \times 38)$

(c) $(38 \times 10) + 5$

(d) $(10 \times 30) + (5 \times 8)$

5. Which of the following is not a true statement?

(a) $15 \times 18 = 18 \times 10 + 18 \times 5$

(b) $15 \times 18 = 15 \times 10 + 15 \times 8$

(c) $15 \times 18 = 15 \times 20 - 15 \times 2$

(d) $15 \times 18 = 3 \times 18 + 5 \times 18$

6. If you know that ' $a + b = c$ ' and that ' d ' does not equal one or zero, which of the following is true?

(a) $a + b + d = c$

(b) $a + b = c + d$

(c) $(a = b) \times d = c$

(d) $c \times d = a \times d + b \times d$

Perhaps some day, in the not-too-distant future, the student will sit before a computer console and 'write' the test based on this concept presented by Dr. MacPherson.

I PREFER "MATHEMATICS TEACHER"

Please, my son,
If it's all the same,
Don't tell everyone
I'm in the numbers game.

Paul H. Greeley, Jr.

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