hundreds of honest and enthusiastic teachers "How am I to begin?" A plan is now placed at the disposal of all who are interested in the proper color instruction of little children. This outfit consists of three distinct features, a glass prism, the Maxwell rotating disks and the Bradley educational colored papers.

By using a cheap glass prism, which can be bought for a few cents, a small spectrum may be shown on the wall of any school-room having a sunny exposure during any part of the day. This spectrum, although small and imperfect, will make plain the fact that sunlight is composed of many colors, and also furnish an attractive text from nature for a color talk.

The second step in this logical course has been the selection of six colors in close imitation of the six spectrum colors, red, orange, yellow, green, blue and violet, and the making of an elaborate set of Maxwell disks for use on a simple rotating machine, by means of which innumerable combinations of the colors are secured and the quantities of each standard employed in such combinations can be definitely measured and recorded by a new and simple nomenclature.

The third step has been the making, from the combinations thus obtained as standards, a complete new line of colored papers, comprising about 125 colors, all in dead finish, which is the only surface suited to the production of pure colors in any material. This line of papers, in connection with the prism and rotating disks, is sufficient to afford all the means necessary for a systematic color education in the primary schools, and has been produced without regard to cost, the only object being to get the best colors without the use of arsenic, which is so common in the cheap papers in the market. These papers are so complete that even without the disks the whole color scheme may be taught, but the attractive nature of the rotating disks admirably adapts that device to the presentation of the elementary facts of color combinations to a class, or, in fact, an entire school.

QUESTION DEPARTMENT.

(2) A uniform bent lever, the weights of whose arms are 5 pounds and 10 pounds, rests with the shorter arm horizontal. What weight must be attached to the end of the short arm that the lever may rest with the long arm horizontal?

ANS.—Take any length for the short arm, say 20 inches. Then the long arm will be 40 inches. When the *short arm* is horizontal, its centre of gravity will be 10 inches from the point on which the lever balances. Multiply this by the number representing the weight of the short arm and we have 50. The distance of the centre of gravity of the long arm from the vertical line passing through the point of support, multiplied by the number (10) representing the weight of the long arm, must also equal 50. Therefore the distance of the centre of gravity of the long arm must be 5 or $\frac{1}{8}$ of the length of the long arm.

When the *long arm* becomes horizontal the short arm will make the same angle with the vertical line from the support as was made in the first position, and the centre of gravity will be distant from the vertical line $\frac{1}{8}$ of its length, or $2\frac{1}{2}$ inches, and its further end will be distant from the vertical line 5 inches.

Let x equal the weight required to be placed on this further end to keep the long arm horizontal.

Then we have $20 \times 10 = 2\frac{1}{2} \times 5 + 5x$.

$x = 37\frac{1}{2}$.

FOR "INQUIRER."

(1) Hamblin Smith's arithmetic, page 193, Ex. 8. A receives 2 per cent. commission on the value of the wheat and 4 per cent on the value of the silk only, but not on the sum paid for commission. If he had received 4 per cent on this also he would have received an *additional sum*, or 4 per cent. on $600, or $24 more, being in all $624, which would then be 6 per cent of all the sum invested.

6 per cent of the sum invested			=	$ 624.
1	"	"	" =	$ 104.
100	"	"	" =	$10400.

Deducting the commission, $9800 was left to be invested in silk.

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(2) Page 217, Ex. iii. 4.

Suppose the articles cost $1.00; then it would sell for $1.05. But if it had cost 5 per cent less, that is $.95, it would require to be sold for $1.04½ to make a gain of 10 per cent. That is it would sell for one-half a cent less than in the first case.

½ cent	=	difference for a	$ 1.00	article.
1 "	=	" "	$ 2.00	"
5 cents	=	" "	$10.00	"

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(3) Page 217, Ex. iii. 5.

1st year he would receive interest on $100 at 6 per cent, or $6.00; 2nd year he would receive another $6.00, also the interest on the first six dollars at 5 per cent., in all $6.30; 3rd year he would receive another $6.00, besides the interest on $12.30 at 5 per cent., in all $6.61½.

His income for the three years would be $18.91½. The $100 of stock would then amount of $118 91½ in three years. But $100 cash at 5 per cent compound interest for the same time would amount to $115.76¼.

$115.76¼ is realized from $100.

$1 " " $\frac{100}{115.76\frac{1}{4}}$

$118.91½ " " $\frac{100 \times 118.91\frac{1}{2}}{115.76\frac{1}{4}} = \$102.723$

Therefore he can afford to give $102.723 for $100 of 6 per cent bonds.