

M. M.—A man who has a two-acre field, twice as long as it is broad, can sell the whole at 10 cents per sq. ft., or he can sell it in lots of 100 ft. by 30 ft. for \$380 each. Which is more advantageous, and how much? If he sells in building lots, what fraction of the land will remain unsold? Academic Arithmetic, Question 5, Ex. 22, p. 115.

Area of field = 87120 sq. ft.

87120 @ 10c. = \$8712

Length \times Breadth = 87120

2 Breadth \times Breadth = 87120

2(Breadth)² = 87120

\therefore Breadth = 208 + ft.; Length = 416 + ft.

By measuring frontage on length, and depth of lots on breadth, we get 26 lots.

26 @ \$380 = \$9880; \$9880 - \$8712 = \$1168

Area of lots, 78,000 sq. ft.; 87120 - 78000 = 9120

$$\frac{9120}{87120} = \frac{38}{363}$$

[The answer to a second question of our correspondent is given above.—EDITOR.]

TEACHER.—What is the weight of a piece of granite 9 ft. 4 in. long, 2 ft. 3 in. wide, and 1 ft. 3 in. thick? (Sp. gr. of granite is 2.72). Academic Arithmetic, Question 4, Ex. 2, p. 27.

$$(9\frac{1}{2} \times 2\frac{3}{4} \times 1\frac{1}{2}) \text{ cu. ft.} \times 2.72 = 4444.65 \text{ lbs.}$$

[Subscribers sending problems to be answered should write them out in full, as well as the references to page, etc., of the text-book. And do not, if you please, send too many at once; and *only those* that you have failed to work out after repeated efforts.—EDITOR.]

M. R.—Will you please solve for me the following questions in Hamblin Smith's Arithmetic, Examination Paper, page 263, Nos. 125, 138 and 140:

125. How many years' purchase should I give for an estate so as to get $3\frac{1}{2}$ per cent interest for my money?

138. At billiards A can give B 5 points in a game of 50 and C 10 points in a game of 50. How many points can B give C in a game of 90?

140. A level reach in a canal, 14 miles 6 furlongs long and 48 feet broad, is kept up by a lock 80 feet long, 12 feet broad, and having a fall of 8 feet 6 inches, how many barges might pass through the lock before the water in the upper canal was lowered one inch?

125. Suppose rental = \$100

Then $3\frac{1}{2}\%$ of purchase = 100

Whole purchase = 3000

$$\$3000 \div 100 = 30$$

30 years' purchase.

138. Since A can make 50 when B makes 45

And A " 50 " C " 40

\therefore B " 45 " C " 40

And B " 90 " C " 80

\therefore B can give 10 points.

140. Amount of water drawn from canal when water is lowered 1 inch = $(77880 \times 48 \times \frac{1}{12})$ cubic feet.

Water in lock = $(80 \times 12 \times 8\frac{1}{2})$ cubic feet.

$$\frac{77880 \times 48 \times \frac{1}{12}}{80 \times 12 \times 8\frac{1}{2}} = 38 +$$

\therefore 38 barges pass through *before* water is lowered one inch.

J. B.—While teaching a school in Havelock, N. B., some years ago, a gentleman who resided close by, one August afternoon, brought into our schoolroom a humming bird, in which he knew we all would be interested. And, after holding it in his hand until we each had a good look at it, he let it go in the room. And as the windows were well opened from the top, we expected to see it go out. But the ceiling was high, and the bird kept constantly upon the wing as high as it could fly. Soon we tried every device we could think of to get it to come down to the open windows, but to no purpose. Next we took recess, all leaving the schoolroom; but still our poor little prisoner never came low enough to find an open window, and never rested. And, at four o'clock, it was still constantly flying backwards and forwards, as it had done all the afternoon. And, by that time, we all were very sorry it had been let go in the house.

We left the doors and windows open until dusk, when they were closed. But, next morning, when we came to school, the poor bird lay dead upon the floor. To all appearance, it had continued flying around the upper part of the room until it dropped dead.

In such a case, what might have been done to save the life of that bird?

It might have been caught in a net.

C. S.—Will you please oblige me by giving answers to the following questions: Which is proper—(1) A hen *sits* or *sits*, (2) The coat *sits* or *sits* well, (3) A *sitting* or a *setting* hen, (4) The sponge has *risen* or the sponge has *raised*, (5) What causes the tides each day, (6) What is the proper name for what some people call "scooch" or "cooch" grass?

1, 2, 3. The intransitive verb *sits* is required in all these cases; as, the hen *sits*; the coat *sits* well; a *sitting* hen. 4. The intransitive *rise* is correct; as, the sponge has *risen*. 5. The attraction of the moon and sun in connection with the rotation of the earth on its axis. (Consult a good dictionary, or a work on geography or astronomy for a fuller explanation). 6. The grass you refer to (*Agropyron repens*) is called *couch* grass from the horizontal position of its root-stocks in the soil; it is also called *quitch* or *quick* grass, probably from its vigorous growth and great tenacity of life, derived from the old meaning of *quick*, living. Compare "quick and the dead" of the New Testament.

TEACHER.—1. Is it advisable to take up all the mathematical subjects, as algebra, geometry, arithmetic, and also bookkeeping, in one term of the school year, or take some of the branches