

Question Drawer.

QUESTIONS.

(1) Should the compound rules be taught before fractions? (2) What is the most satisfactory way of giving credit marks?
HUGH, Ottawa.

I hold a second-class grade A non-professional certificate, and have taught one year on a third-class professional. I wish to know it, by passing the required non-professional examination, and attending the training institute for first-class teachers, I can get a first-class professional certificate without attending the Normal School.

J. B., Connor.

(1) Can a teacher, holding a certificate to teach in Ontario, teach in Manitoba on that certificate? (2) To whom should I write for information about the schools of Manitoba?
M. P., Wentworth Co.

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Kindly answer the following questions:—(1) Ode to France.

Expatriate: "When Franco, her front deep-scarred and gory,
Concealed with clustering wreaths of glory."—Stanza 3.

(2) "Drunken Passions." Same stanza.

J. H. T., Bluevale.

How would you lay out a square acre mathematically correct?

F. B., Cornwall.

ANSWERS.

HUGH, Ottawa. —(1) We are of opinion that fractions, in a general sense, may be taught in connection with the simple rules, and therefore before the compound rules. (2) We request a reply to this question from our readers.

J. B., Connor.—We presume that certificates obtained at a training institute are equivalent to those of the Normal School, and attendance at the latter is obviously unnecessary.

M. P., Wentworth Co.—(1) Ontario Teachers' Certificates are recognized in Manitoba. (2) J. B. Somerset, Esq., M.A. Superintendent of Education, Winnipeg.

In reply to T. C., Goldstone, April 1st, 1886.

(1) ABC is a right angled triangle. AD bisects BAC and cuts BE in D. Required length of AD.

$$\sqrt{AB^2 + AC^2} = BC = 50. \quad (I-47).$$

Drop perpendicular AE from A on BC.

$$\text{Area of triangle ABC} = (AC \times AB) \frac{1}{2}.$$

$$\text{Area of triangle ABC} = (BC \times AE) \frac{1}{2}, \text{ or } AC \times AB = BC \times AE, \therefore AE = 24.$$

$\sqrt{AB^2 - AE^2} = BE = 18. \quad (I-47).$ Then if the angle of a triangle be bisected by a straight line, which also cuts the base, the segments of the base shall have the same ratio to each other as the other sides of the triangle, &c. (VI-3).

Dividing BC in the ratio of 30 : 40.

$$BD = 21\frac{3}{4} \text{ and } DC = 28\frac{1}{4}.$$

$$BC = 18 \therefore ED = 3\frac{3}{4}. \text{ AED is a right angle triangle, and}$$

$$\sqrt{AE^2 + ED^2} = AD = 24.243. \dots$$

(2) Solid contents of globe or sphere = Diam.³ × .5236.

(3) (a) That which causes a thin shadow beside the heavy one thrown by a heated stovepipe is a gas caused by the action of the heat upon the air surrounding the pipe. (b) No.

DAVID DUFF, Balmorcal.

Reply to T. C., Goldstone, April 1st, 1886.

Draw DE² to AC then DE = AE ∴ AD² = 2AE² ∴ AD = AE√2.

$$AC : AB :: EC : ED (=AE) \text{ (Euc. VI. 2).}$$

$$AB + AC : AB :: EC + AE \text{ (or AC) : AE by comparison.}$$

$$\therefore AE = \frac{AB \times AC}{AB + AC}.$$

$$\therefore AD = \frac{AB \times AC}{AB + AC} \sqrt{2} = \frac{30 \times 40}{30 + 40} \sqrt{2} = 24.24.$$

C. W. B., Maitland, Hauts Co., N.S.

P.S.—Is "resembling" a misprint? [Yes; it should be "subtending."—Ed.]

Reply to T.C., Goldstone.

1. Given the two sides of a right-angled triangle to find the hypotenuse. Square the sides, add and extract the root; thus 30 × 30 = 900, 40 × 40 = 1600 + 900 = 2500, root 50. Next find the area. Multiply the base by half the altitude, 40 × 15 = 600 area. Then take 50 for base with which divide the area, this gives half A D, thus 600 ÷ 50 = 12 × 2 = 24 length of A D.

2. Take the diameter of any sphere and multiply its cube by .5236, the product will be the required solid contents.

3. It is not the heat, but the heated oxygen which throws the shadow.

X + Y.

T. C. Doidge, in replying to the geometrical question given by T. C., Goldstone, is not correct, because he does not draw the line bisecting the right angle to the point D in the line subtending the right angle.

E. E. R., Inkerman, and T. C. Doidge give the same rule as that given in David Duff's answer for finding the solid contents of a globe or sphere.

MY RAILROAD PROBLEM.—I condemn myself for negligence in not acknowledging Mr. D. McEachren's very neat solution. I have compared his with my own solution, and I prefer his. I will remit him mine by mail, if he desire. I wish to draw the attention of your readers, Mr. Editor, to the following curious case in triangles:

Euclid tells us that triangles on the same base and between the same parallels have equal areas. In the triangle whose sides are 3, 4, 5, if we take 4 as a base, we should be able to find rational sides other than 3 and 5 and area 6; the perpendicular distance between parallels being 3. Also, in the triangle whose sides are 5, 12, 13, sides other than 12 and 13 can, I think, be found. I spent much time at this case.

JOHN IRELAND, Fergus.

To the Editor of the CANADA SCHOOL JOURNAL:

It strikes me that "T. W. S." in the "Question Drawer" of April 1st has over-shot the mark in his criticism of that problem, H. Smith's Arith. page 284, Ex. 256, and the solutions given. The most natural conclusion, certainly, from the statement of the problem, seems to be that the man does in half a day what the boy would require a day to do; that is, that he does twice as much as the boy. This conclusion is readily verified by the conditions of the problem, and what is more, no other supposition can be verified. Take, for example, "T. W. S.'s" supposition that the man may do two and a half times as much as the boy. The man and boy, working alternately 6 days, will leave $\frac{2}{3}$ of the work still to be done; if it is the man's turn to work next, he will finish this on the seventh day, but if it is the boy's turn to work next, he will leave $\frac{2}{3}$ of the work at the end of the seventh day, which it will require $\frac{2}{3}$ of the eighth day for the man to finish.

H., Sherbrooke, P.Q.

Literary Chit-Chat.

Mr. Justin McCarthy and Mrs. Campbell Praed have just completed a new story entitled "The Right Honorable."

Houghton, Mifflin & Co. are shortly to publish "Hamlet's Notebook," the latest contribution to the Bacon-Shakespeare controversy.

Mr. Leslie Stephen's "Dictionary of National Biography" promises to be a rather formidable affair. The sixth volume recently issued reaches only the word Browell.

Messrs. Dodd, Mead & Co. are about issuing for the American News Company a quarto paper pamphlet edition of E. P. Roe's novel, "From Jest to Earnest."

Under the name of "Persia, the Land of the Imams," Rev. Jas. Bassett, a Missionary of the American Presbyterian Board, records the observations made during fourteen years' residence in "The Land of the Sun."