This problem is known as Malfatti's Problem, being first solved in 1803 by John Francis Malfatti, an Italian geometer. It is a celebrated problem, and has been variously solved by a number of mathematicians.

ANSWERS TO CORRESPONDENTS.

The mass of correspondence we receive reveals the interest many readers take in this department. We take this opportunity to thank many kind friends for hints and suggestions which will enable us to make these columns still more useful to subscribers. During the coming school year we hope to continue our papers on elementary algebra and also to find room for some geometrical exercises.

MR. H. A. MCCALLUM, Waterford, Ont., MR. JOHN MOSER, South Tay, N.B., MR. JOHN ANDERSON, Candasville, Ont., and MR. G. H. ARMSTRONG, Boston Mills, Ont., have sent solutions of problems in April number, which are held over.

MR. EDGAR KESNER, Ameliasburg, and MR. JAMES SUTHERLAND, Strathroy, have furnished us with a solution of problem 7, ii., jun. matric., given in June number. The following is the method :

$$\frac{1}{\sqrt{3}(1+\sqrt{3})} = \frac{1}{\sqrt{3}} - \frac{1}{1+\sqrt{3}}$$

$$\frac{1}{(1+\sqrt{3})(2+\sqrt{3})} = \frac{1}{1+\sqrt{3}} - \frac{1}{2+\sqrt{3}}$$

$$\frac{1}{(n-1+\sqrt{3})(n+\sqrt{3})} = \frac{1}{n-1+\sqrt{3}} - \frac{1}{n+\sqrt{3}}$$

$$\frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}} - \frac{1}{n+\sqrt{3}} = \frac{n}{\sqrt{3}(n+\sqrt{3})}$$
When *n* becomes infinite, $\frac{1}{n+\sqrt{3}}$ vanishes and sum $= \frac{1}{\sqrt{3}}$.

MR. DANIEL O'DOHERTY, McGregor, Ont., informs us in answer to a query that a solid cube of 10 ft. cut from a mow of hay will weigh a ton.

MR. ARMSTRONG asks how a ship at sea is able to determine whether it is north or south of the equator. We know of no way but by making observations on the stars. The Nautical Almanac would give the precise position of the constellations which are easily recognized. The sun's declination must be subtracted or added according as the ship is on the same or on the opposite side of the equator.

CORRESPONDENT, North Platte, Neb., wishes a correct solution to the following problem : A hollow cylinder, inside dimensions 10 ft. long and 5 ft. diam., lies on its side filled with oil to the depth of 3⁴/₃ ft. How many gallons?

We trust all our friends from Nova Scotia to the Pacific may find a very successful solution to that majestic problem : How to develop unlimited enjoyment from finite holidays.

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WANTED, THE SCHOOLMASTER.—A recent examination of elementary teachers in Cape Colony brought out some little-known statistics as to the distribution of population. The candidates varied in their estimates of the population of London from 300,000,000 down to 8,000; Manchester has 200,000, 000 against Leeds with 900, and Wolverhampton—there is nothing like accuracy —with 569; while 10,000, according to one candidate, is the number for Holland and Belgium together. Equally, scientific accuracy was evidently the forte of the elementary teacher who considers that "electricity and lightning are of the same nature, the only difference being that lightning is often several miles in length, while electricity is only a few inches;" and of another who defines electricity as "the orbit described by the sun round the earth, but in reality the earth round the sun."

The Kentucky superintendent of schools furnishes these statements:-Of every 100 of the tate's population, 15 cannot read. Of every 100 whites over ten years old 15 cannot write. Of every 100 negroes over ten years of age, 49 cannot write. Of every 100 men over 21 years old, 17 cannot write, Of every 100 negro men over 21 years old, 75 cannot write. The whole number of men over 21 years who cannot write forms an array of 76.221.

Correspondence.

THE RECENT EXAMINATION.

To the Editor of the CANADA SCHOOL JOURNAL :----

SIR, —I shall perhaps render a not unwelcome service to several teachers, if I point out a few of the mistakes which have most frequently attracted my notice in answers to the questions on the English Language and Literature at the recent Examination.

Learners should be cautioned against the mistake of deriving Anglo-Saxon words from Modern German. It is quite wrong to say that "as" is *derived* from "als," "shall" from "sollen," or "may" from "mögen." English and German are collateral descendants from a common stock; but the one is no more *derived* from the other than one of two sisters is the child of the other.

By about half the candidates the analysis was better done than before, but the rest showed a very feeble grasp of the relation of subordinate clauses to the entire sentence. But what can be expected when learners are taught to set out columns headed "Subject," "Predicate," "Object," &c., and to find the Object of a transitive verb like *said*, by putting the interrogative "whom" or "what" with the verb, but when they have to deal with a sentence like that set for analysis, are allowed to leave the column headed "Object" blank, although the simple application of their test for the object would show that the column ought to be filled up with the rest of the sentence? There was also a pretty general neglect of the distinction between a conjunction such as "that," which is a connective and nothing more, and a word like "which," which is not only a connective-- but a pronoun as well, and so requires to have its own construction indicated.

If candidates are intended to show any acquaintance at all with Anglo-Saxon forms, it is really not too much to expect that they should be able to write correctly the fifteen or twenty words which serve to explain the pronouns, and a few anomalous verbs. The excellent work of several showed that the feat is not difficult. A pupil must have been very badly drilled when he sets down as the origin of so common word as "that," forms such as thea, theat, theot, thicce, thacce, &c. In one series of papers the form hast occurred so regularly as to lead me to conjecture that some teacher had mistaken the Anglo-Saxon Thorn (b), for an eccentric mode of writing h. The derivation of that from the and at (=the one at that place) was novel.

Beginners, who fancy that thither and thence come from thou or thee, whither (sometimes given as wither) from we, and hither from I, had better steer altogether clear of etymological questions.

It is necessary to inform a very large number of the candidates that "but" is not compounded of the verb "be" and "out," (though they will find the blunder repeated in many books,) but of the preposition "be" or "by," in the same way as "behind," "before," &c. Also, if asked to state the different ways in which "but" is used, let them abstain from calling it a noun. The question has reference to "but" as a significant word, and not to the mere combination of b-u-t.

Some very wild work was made with the abstract nouns, most (for example) giving "age" as the abstract noun derived from "old." A good many (whose delicate hand-writing betrayed their sex) gave "rouge" as the abstract noun from "red." It is to be hoped that this does not betoken a too early familiarity with the concrete article.

In the answers on English Literature, some very good and careful work was shown up by a considerable number, but in too many cases there was evidence of superficial and hasty cram-work, often in connection with mere viva voce lessons. Teachers should convince themselves that this sort of thing does not "pay," as very few marks are gained by answers in which Spenser's "Duessa" is called "Guessa" or "Odessa," his "Belphoebe" "Belle Phoebe," and his estate located at Kilmainham, Kilmarnock, or Kilimanjaro. No candidate who had once read the names with attention could give Ascambe for Ascham, Atnerway for Hathaway, or Aronis and Vesuvius for Venus and Adonis. Moreover, candidates who have evidently never read a single stanza of Spenser are not expected to express (at second hand) the valuable opinion that "the six books of the Faerie Queene form a descending scale of merit," any more than that the coquettish Rosalind "little knew the worth of the jewel she had fluing away, when she made a plaything of the poet's heart," &c., &c. When remarks of this sort, expressed in exactly the same words, have been forced on one's attention a few score times, they get just a little wearisome.