1. (a.) Write out the rule for finding the greatest common measure of two numbers.

(b) Make an arithmetical question illustrating the formula—If A varies as B when C is invariable, and A varies as C when B is invariable, then A varies as BC when both B and C are variable.

- (a) In what sense can 9 be said to be equal to unity ?
- (d.) Make diagrams illustrating the identities-

 $\frac{3}{4}$ of $\frac{4}{5} = \frac{3}{5}$ and $\frac{5}{5} = \frac{6}{10} = \frac{7}{10}$

2. How many bricks 6 inches long, 3 inches wide, 2½ inches deep are required for a wall 330 yards long, 9 inches wide, 20 feet high 7 Find also the cost of the wall, reckoning 5s. for 110 bricks and 25s. per rod for labour.

3. A room 25 feet long and 15 feet wide, is covered with paper 30 inches wide, at 9d. per yard ; if the paper had been 33 inches wide, the cost would have been 14s. 8d. less; find the height of the room.

4. A tank 18 feet long and 6 feet deep, costs £10 16s. ; if it had been 2 feet wider the cost would have been £2 14s. more ; find the cost per cubic fost and the width of tank.

5. The first-class fare on a railway is $2\frac{1}{2}d$. per mile, the secondclass $1\frac{3}{2}d$.; first-class passengers are allowed 100 lbs. of luggage, second-class, 75 lbs.; for every 5 lbs. of excess in luggage a charge is made in each case of $\frac{1}{2}d$ per mile; find the gain made by a party of six travellers, each having 95 lbs. of luggage on a journey of 100 miles, if they travel first-class instead of second.

6. Reduce 3 14 of £39 7s. 6d. +5 07 of £104 7s. 3d. -6.125 of £59 16s. +9.3125 of £384 5s. 4d. to the decimal of £1,000.

7. A consignment 1,600 lbs. of sugar is sold at $4\frac{1}{2}$ d. per lb. to gain $12\frac{1}{2}$ per cent., a second of 1,800 lbs. at $5\frac{1}{2}$ d. per lb. to gain 10 per cent., a third of 2,000 lbs. is sold at 3d. per lb., and a gaun of 10 per cent. is made upon the whole ; find the original price per lb. of third consignment.

8. Two thirds of an estate is divided between a brother and a sister in the proportion of 9:7; the brother's share of the estate exceeds the sister's by £1,728 10s. 8d.; find the value of $\frac{5}{18}$ of the estate.

9. Show that the amount of £700 at ten per cent. per annum, compound interest, will in eight years exceed the amount of £1,000 at 5 per cent. per annum, simple interest.

10. A square contains 150,544 square feet; show that the smallest square whose side contains an exact number of feet, and which is equal to the sum of this square and another square, contains 233,225 square feet.

11. The expenses of farming are four times as great as the rent; what is the rent of a farm of 400 acres, if the farmer clears 10s. per acre, each acre yielding 16 bushels of wheat, and the wheat fetching 35s. per quarter?

12. A piece of hand containing 17 acres 3 roods is bought for $\pounds 1,580$, and an adjoining piece containing 8 acres 2 roods, for $\pounds 520$, the whole is sold in plots of 1,089 square feet, at 4d. per square yard; find the gain per cent.

•13. Three trains, 200, 528, 130 yards long, are travelling on parallel lines at rates of 15, 24, and 30 miles per hour respectively, the first two in the same direction, the third meeting them ; the second reaches the rear of the first train at the same moment as the third reaches its front ; find the interval in time between the moments when each of the two trains clears the third.

14. The 3 per cents. are $101\frac{1}{2}$; find the loss or gain in capital and in income which would arise by transferring £10,000 from the 3 per cents. to a $2\frac{1}{2}$ per cent. stock at 108.

Mr. C. S. Eggleton writes as follows :--Please notice that the answer of question JI in the arithmetic of the "Harvard College" series, as given in December's JOURNAL, is erroneous. The answer should read 8 acres, 150 25 sq. rods, instead of 17 acres, 140 4990 sq. rods.

Correspondence.

To CORRESPONDENTS:—A friend, whose note we have for the moment mislaid, writes to ask whether we will give answers in the JOURNAL to questions on certain subjects connected with educational work. We shall be glad to receive such questions, and shall spare no. Bains in order to get information and give reliable answers.

Practical Department.

GOOD ORDER.

Good order is essential to the success of a school. No one can teach well who cannot maintain order. But the best order in school does not always imply the greatest degree of quiet. The busy hum of life and activity is preferable to the stillness of death. That was a very apt reply of Col. Parker to his visitor at Quincy. "Isn't this very noisy?" she asked. "Precisely, madam ; this is a work-shop, not a funeral," was the reply. No absolute rule can be laid down concerning the degree of quiet necessary to good order in a school. Greater quiet is necessary for some teachers and for some schools than for others. As a general rule, the greater the power of the teacher, the less the necessity of absolute stillness. One of the best schools I ever saw was not a quiet school. The one absolute requirement was honest and effective work. No liberty of the pupil was curtailed which did not interfere with his own or his neighbor's legitimate work. If he found it necessary to cross the room to consult a dictionary or a cyclopedia, be did it in an orderly way without even a signal to or from the teacher. Very little was said about whispering. At the assembling and dismissal of the school, and at the time of changing classes, pupils were not restained from communicating with each other; but when the time for work came, absolute attention to that was required and secured. Of course any abuse of liberty was summarily dealt with. There grew up between teacher and pupils a feeling of mutual confidence and respect, and the pupils gained rapidly in self-respect and selfcontrol-the best results of school training.

It is conceded that there are only a few teachers who can control in this way or maintain this kind of good order; but it is the ideal which every teacher should keep before him. Order must be maintained; if it cannot be done in one way it must in another. The question which presents itself to each teacher is, what is the greatest degree of freedom I can grant to my pupils and yet keep a firm grip of the reins? and each will answer to himself according to the measure of his own enlargement. Coupled with an unyielding determination to exercise control and maintain order at all hazards, should be the constant aim to secure these ends by the use of such means and methods as tend most to form right habits and build up good character in the pupils. No matter how great the degree of quiet, that cannot be called good order in any high sense, which is secured solely by repression or force. - Ohio Educational Monthly.

WHAT ARE YOU READING?

Every growing teacher is a persistent and systematic reader. The teacher who "soldiers" is not a reader. She puts in her spare hours in other ways. Reading, like every other effort, may be misdirected. The professor who puzzled his brains to know how the calf got through the knot-hole in the barn door, through which its tail was stuck, while the poor calf's hide was nailed up to dry on the inside, has many a living type and exemplar. Teaching a mouse to roll a thimble up an inclined plane is wasted endeavor. So is promiscuous, ill-judged, unassorted reading. Life is too short for any mistakes of this kind.

In the face of so great a field for reading and study, one needs to make a wise choice. A hay rake is a poor instrument with which to winnow literary material, and one needs some settled principles of selection of reading matter:

Reading matter should be distributed between newspapers, magazines, school journals, professional books, and general literature. Newspapers are to be read for current news.