## TEACHERS' DESK.

J. C. GLASHAN, ESQ., EDITOR.

Contributors to the "Desk" will oblige by observing the following rules :---

I. To send questions for insertion on separate sheets from those containing answers to questions already proposed.

2. To write on one side of the paper,

3. To write their names on every sheet.

CORRECT ANSWERS RECEIVED.

HENRY GRAY, Sombra, 114.

E. T. HEWSON, Garnet, 114.

C. A. BARNES, Ottawa, 113, 114.

H. T. SCUDAMORE, Florence, 116.

## ANSWERS TO CORRESPONDENTS.

FLAVEL DAVIS, Binbrook. We do not certainly know what percentages are required for the several grades of First Class Certificates. Address the Central Board.

## SOLUTIONS.

(III.) How many rails would be required to enclose a square field with a fence eight rails high and two panels to the rod, so that for each rail in the fence there would be an acre in the field ?

DAVID REID, Troy.

Since there are sixteen rails to each rod all round, there are 64 rails to each rod in any one side, say the front ; hence for each rod of frontage there are 64 acres in the piece. The problem is now reduced to,—A rectangular piece of land one rod wide contains 64 acres, how long is it? Answer, 10240 rods. Hence the field was 10240 rods on each side ; requiring 655360 rails to fence it.

(112.) Two men took a contract of putting.up 300 sq. yds. of wall for \$300, and it was agreed that the one should have 25 cents per yard more for what he did than the other. They each received the same amount of money. How many yards of wall did each build ?

L. WELCH, Mt. Brydges.

Let the one receive \$x per sq. yd. and the other \$(x+.25), hence they built  $\frac{150}{x}$  and  $\frac{150}{x+.25}$  sq. yds. respectively.

$$\therefore \frac{-3}{x} + \frac{-3}{x} = 300$$

$$\therefore x = \frac{1}{8} (3 + \sqrt{17})$$
  
$$\therefore \frac{150}{x} = 150 (\sqrt{17} - 3) = 168.4658$$
  
$$\frac{150}{x + .25} = 150 (5 - \sqrt{17}) = 131.5342.$$

113. A party consisting of twelve persons, men women, boys and girls, stay at an inn. On settling their bill, \$12 in all, the men pay \$4 each, the women \$2 each, the boys  $\frac{1}{2}$  and the girls  $\frac{1}{2}$  each. How many of each sex were there?

D. HICKS, Rose Hall.

$$4w + 2x + \frac{1}{2}y + \frac{1}{4}z = 12$$

$$w + x + y + z = 12$$

Omitting zero values the only solution is

w=1, x=2, y=7, z=2

This problem seems to have puzzled some who have tried it by Alligation. The solution is simple

· · · · · · · · · · · · · · · · · · ·	2 + 1/2
	+ 14
····.=7	persons
$4G_{1} = 5$	
=3	"
4G. =7	"

Taking the first two sets and completing with the third we get

lM.,		зB.,	2G=6 persons
	2W.,	4B.	=6 **

1M.,	2W.,	7B.,	2G=12 persons	ł

Taking the last two sets and completing with the first set we get

	2₩.,	1B.,	2G=5	persons,
1M.,		6B.,	=7	"

the same solution as before.

(114.) A banker borrows at  $3\frac{1}{2}$  per cent. payable yearly and lends at 5 per cent. interest payable quarterly. He gains in one year £441. How much does he borrow?

E. T. HEWSON, Garnet.

$$\pounds_{441} \div \{ 1.01254 - 1.035 \} = \pounds_{27657}$$

If the interest was reckoned by commercial discount, he borrowed