ARITHMETICAL PROBLEMS.

By LEO. B. DAVIDSON, Head Master, Goodwood Public School.

1. (*a*) The H. C. F. of two numbers is 15 and their L. C. M. is 840. Find the numbers. *Ans.* 70, 105.

(*b*) There is a number comprising 3 digits, which can be divided by 8, 9, 10, 15, 16, or 20, leaving in each case a remainder of 5. Find the number. *Ans.* 725.

2. A sold a horse to B, who immediately sold it to C. at a gain of $\frac{1}{8}$ of cost price. C. ascertains afterwards that the horse cost him $\frac{7}{80}$ more than it did A. How much did A. gain? *Ans.* $\frac{1}{4}$.

3. At a promotion examination, a candidate obtained as an answer to a problem 272 ft. 6 in. The teacher upon examining the pupil's work notices that he has used as a multiplier 5.45 instead of 5.54. What was the correct answer? *Ans.* 277 ft.

4. A grocer, upon being asked the weight of a chest of Japan tea marked @ $1 per lb. replies; "I purpose gaining at that figure, $11 on the whole, or $\frac{1}{4}$ of what it cost me." Find the weight of the tea. *Ans.* 55 lbs.

5. A teacher is assessed for all his salary above $400, @ the rate of $4\frac{1}{2}$ mills on $1. After paying his tax he finds he has a net income of $798.20. Find his salary.

Ans. $800

6. A piece of work valued at $12 66$\frac{2}{3}$ can be done by A in $\left(7 \cdot 5 + \frac{1+\frac{3}{5}}{1-\frac{3}{5}} \div \frac{1+\frac{1}{3}}{1-\frac{1}{3}}\right)$ days, and by B in $\frac{1}{2}\left(\frac{1+\frac{2}{3}}{1-\frac{2}{3}}\right)$ of 2 days. They work together in company with a boy, and thus finish the work in 4 days. Find the boy's daily earnings. *Ans.* 82c.

7. Find in Canadian Currency the value of the following invoice in Sterling:—

13$\frac{1}{2}$ cwt Scotch Sugar @	£1	0 6	per cwt.
53$\frac{3}{4}$ yds Irish Linen @	0	0 7$\frac{1}{2}$	per yd.
65 yds English Silk @	0	4 8$\frac{1}{2}$	per yd.
15 yds Scotch Tweed @	0	5 0$\frac{1}{2}$	per yd.

Ans. $167.90

8. $146. Goodwood, May 2nd 1885.

Three months after date I promise to pay Messrs. James Ross & Co. the sum of $146 with interest @ 7$\frac{1}{2}$ % for value received.

(Signed) John Jones.

What must John Jones pay to discharge this note when due? *Ans.* $148.76

9. A room is 20 ft. long and 15 ft. 6 in. wide. It costs $43.40 to cover the floor with carpet worth 77 cents per yd. Find the width of the carpet. *Ans.* 22 in.

10. A square metal plate whose side is 10 inches, is 1 inch thick; out of this is cut a concentric square with a side of 8 inches. Find the side of a square sheet of gold, $\frac{1}{11}$ inches in thickness required to cover this metal ring with plate $\frac{1}{28}$ in. in thickness.

Ans. 8 in.

ENTRANCE TO HIGH SCHOOLS.

GEOGRAPHY.

1. Define peninsula, archipelago, strait, oasis, isthmus.

2. (*a*) What is the highest possible degree of longitude, also of latitude?

(*b*) What is the latitude and longitude of a place situated on the Tropic of Cancer due south of Greenwich?

3. Tell what is the longest railway in Canada, and name five of the principal stations on it.

4. Name the Provinces of the Dominion of Canada.

5. Mention the chief bodies of water through which you would pass on a voyage from Liverpool to Calcutta, and name six islands passed on the way.

6. Where are Rio de Janeiro, Herat, Tasmania, New Orleans, Khartoum, Juan Fernandez?