Then $x \log_a b = \log_a N$. And substituting for x, $\log_b N . \log_a b = \log_a N$.
Whence $\log_b N = \dfrac{\log_a N}{\log_a b}$

(*b*) Find $\sqrt[14]{242447}$, given mantissa log $24244 = .3846043$, and diff. for $1 = 179$. Log $242447 = 5.3846043 + {}^7/_{10}.179 = 5.3846168$.

Dividing this by 14 gives .3846155, and the number answering to this logarithm is 2 4244C +

9. (*a*) Given $b = 927.3$, $c = 519.6$, $A = 73^{\circ}\ 18'$, find B and C, having given log $407.7 = 2\ 6103407$, by $1446.9 = 3\ 1604385$.

$$\left.\begin{array}{l} L \cot 36^{\circ}\ 39' = 10.1331709 \\ L \tan 20^{\circ}\ 57' = \ \ 9.5830435 \end{array}\right\} \text{Diff. for } 1' = 3782.$$

Being two sides and the included angle given, the proper formula is

$$\frac{b+c}{b-c} = \frac{\tan \frac{1}{2}(B+C)}{\tan \frac{1}{2}(B-C)}$$

But $b + c = 1446.9$ and $b - c = 407.7$; and $\frac{1}{2}(B+C) = 90^{\circ} - \frac{1}{2}A = 53^{\circ}\ 21'$ and the complement of this is $36^{\circ}\ 39'$.

The logarithmic formula is: $L \tan \frac{1}{2}(B-C) = \log(b-c) + L \tan \frac{1}{2}(B+C) + a.c.\log(b+c) = 2.6103407 + 10.1331709 + 6.8395615 = 9.5830731$.

Whence $\frac{1}{2}(B-C) = 20^{\circ}\ 57'\ 4''\ 7$. And $\frac{1}{2}(B+C) = 53^{\circ}\ 21'$.

$\therefore B = 74^{\circ}\ 18'\ 4''.7$. $C = 32^{\circ}\ 23'\ 55''3$

(*b*) Given *b*, *c*, and C, show how to solve the triangle, indicating when and how an ambiguity may arise.

Discuss geometrically, the possible ambiguity. Fundamental formula $\sin B / \sin C = b/c$. $\therefore \sin B = b/c \sin C$. Or, logarithmically, $L \sin B = \log b + L \sin C + a\,c. \log c$.

If $b < c$, then $B < C$ and $2B < B + C < \pi$. $\therefore B < \pi/2$ and is determined by its sine. If $b = c$, then $B = C$ and is determined. If $b > c$, then $B > C$, and $2B > B + C$ which is $< \pi$

$\therefore$ All we know about B is that it is greater than a quantity which is $< \pi/2$, and as far as its sine is concerned B may be $> \pi/2$ or $< \pi/2$ This forms the ambiguous case.

The ambiguous case cannot be intelligently discussed, geometrically, without a figure.

CONTEMPORARY LITERATURE.

The complete novel in the June *Lippincott* is unusually fresh and stirring in its interest, being a romance of Spain in the time of the Peninsular war. The author's name is Benito Perez Galdos. A little lyric of peculiar sweetness and delicacy is that entitled "Robin," by Ella Gilbert Ives. Among other interesting matter may be mentioned an article on "Improving the Common Roads," by J. G. Speed.

Two Canadians figure in the issue of June 1st, of *Littell's Living Age*, Miss L. Dougall, of Montreal, is represented by a charming little tale called "Young Love," while Mr. Arthur J. Stringer, of London, Canada, contributes a short poem in which are united felicity of expression and beauty of thought.

"The Lottery Ticket" is the title of a serial by J. T. Trowbridge which is running at present in the *Youth's*