INTERMEDIATE ALGEBRA—concluded

5 a Write the value of $64^{-\frac{1}{2}} - 3(13)^{\frac{1}{2}} + 12(2)^{-2}$ [6]

b Divide $e^{2x} + 2 + e^{-2x}$ by $e^x + e^{-x}$ [6]

Group II

Answer four questions from this group, including either question 6 or question 7.

6 A crew can row 8 miles down a stream and back in 3 hours and 40 minutes; if the rate of the stream is $2\frac{1}{2}$ miles an hour, find the rate of the crew in still water. Equation [7], solution [5]

7 A corner building lot, rectangular in shape, contained 9600 square feet. After a sidewalk 6 feet wide had been built on one side and the front, the area of the lot was reduced to 8316 square feet. Find the original length and width. Equation [7], solution [5]

8 Form the equation whose roots are $\frac{m + \sqrt{n}}{2}$ and $\frac{m - \sqrt{n}}{2}$ Solve this equation by the formula and thereby test the correctness of the equation you have formed. [12]

9 Solve the following and correctly group your answers:

\[
\begin{align*}
2x^2 + xy &= 15 \\
x^2 - y^2 &= 8
\end{align*}
\]

10 Draw the graph of the equation $x^2 - 4x + 2 = 0$ to the nearest tenth. [Leave all work on the paper.] Making graph [8], estimating roots [4]

11 Answer either a or both b and c:

a Derive a fundamental formula for the sum of $n$ terms of a geometric progression. [12]

b Prove: $\log a^b = b \log a$ [3]

c By the use of logarithms find the value of

\[
\frac{(0.840)^3 \times \sqrt[3]{18.7}}{3.42}
\]

[9]

12 In the formula $C = \frac{S \times E}{S \times b + R}$

a Solve for $S$ in terms of the other letters. [6]

b Find the value of $C$ to the nearest hundredth if $S = 4$, $E = 1.07$, $b = 2.4$, $R = 27$. [6]
DIRECTIONS FOR RATING

The direction, "Less than 60% of the credit should be granted when an error in computation occurs," should be followed in rating all incorrect answers to questions which fall under the topics mentioned in "Suggestions on the Rating of Regents Examination Papers in Mathematics" under "General 3."

In rating all problems, see "Suggestion 12."

No credit should be allowed for checks unless made in original statements.

Except in schools where the "committee system" is used, teachers are urged to mark papers cumulatively, that is, to add the credits earned by each answer to the total credits earned by preceding answers so that the mark given to the last answer is the per cent to which the paper is entitled, e.g. consecutive answers earning 5, 7, 4 etc. respectively should be marked 5, 12, 16 etc. respectively.

1 12½ credits
   Allow 2½ credits each.
   Allow no partial credit on any part.

2 12½ credits
   a 5 credits. Allow no partial credit.
   b 7½ credits. Allow 4 credits for correct addition and 3½ credits for correct division. Allow no partial credit on either part.

3 12½ credits
   a 4 credits
   b 4 credits
   c 4½ credits

   Allow no partial credit on a, b or c.

4 12½ credits
   a 5 credits
   b 7½ credits

   Allow no partial credit on either part.

5 12½ credits
   a 6 credits
   b 6½ credits

   Allow no partial credit on either part.

6 12½ credits
   Allow 7½ credits for correct equation and 5 credits for correct solution.

7 12½ credits
   Allow 7½ credits for correct equation and 5 credits for correct solution.

8 12½ credits
   Allow 5 credits for the correct equation and 7½ credits for the correct solution by formula.

9 12½ credits
   Allow 6½ credits for first solution and 4½ credits for the other three solutions (1½ each).
   Allow 1½ credits for correct grouping.

10 12½ credits
    Allow 8 credits for the graph.
    Allow 4½ credits for estimating, from the graph, the roots to the nearest tenth.

11 12½ credits
   a 12½ credits
   b 3½ credits

12 12½ credits
   a Allow 6 credits
   b 6½ credits

   Allow no partial credit on either part.