INTERMEDIATE ALGEBRA

Wednesday, September 8, 1920 - 9.15 a.m. to 12.15 p.m., only

Answer eight questions. Credit will not be granted unless all operations except mental ones) necessary to find results are given; simply inducating the operations is not sufficient. Each answer should be retuced to its simplest form. Papers entitled to less than 75 credits will not be accepted.

1 Find the prime factors of each of the following:

$$\begin{array}{r}
 10a^3c - 15a^2c^3 - 70ac^4 \\
 x^4 - 8x^2 + 17x - 10 \\
 x^4y^4 - 64 \\
 4a^{2x} - 20a^xy^k + 25y^{2k}
 \end{array}$$

2 a Solve without the use of tables: 4x-1=2

à Divide
$$x^{\dagger} + x^{-\dagger} - 2$$
 by $x^{\dagger} - x^{-\dagger}$.

3 a State two distinct ways of forming an equation when the roots are given. Using one of these methods, form the equation whose roots are

$$2+\sqrt{2}$$
 and $2-\sqrt{2}$

b What must be the value of k in the equation $3x^2-6x-17+k=0$

to make both roots equal?

Leave on the paper all work for both a and &.

4 Solve the following, correctly group your answers and check one set of answers:

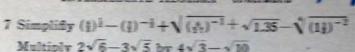
$$\begin{cases}
4x^2 - 13xy + 9y^2 = 9 \\
xy - y^2 = 3
\end{cases}$$

5 Represent graphically each equation in the following set and from the graph determine the common solutions: $y^2 = 3x + 9$: 2x - 3y = 0

6 Three numbers whose sum is 24 are in arithmetic progression, but if 3, 4 and 7 are added to these respectively, the result forms a geometric progression; find the numbers. Leave all work on the paper.

On

By the use of logarithms find the value of



8 In the formula
$$P = \frac{nd^2}{2.3}$$

a Solve for d.

b Find the value of d to the nearest tenth when P=51.84 and n=4.32.

9 The dimensions of a rectangle are 5' by 2'. Find the amounts to the narest hundredth by which each dimension must be changed in order that both area and perimeter shall be doubled.

10 A boatman trying to row up a river drifted back at the rate of 2 miles per hour, but when rowing down the river his rate was 12} miles per hour; find the rate of the current.