of merit. With the exception of two or three errors arising from inadvertence, he has carefully answered all but one of the questions set, and that, too, in a style remarkable for neatness, and exhibiting a familiar acquaintance with the best methods of performing algebraic operations. In short, I think that the answers of number six are in every respect deserving of the title of 'Excellence.'"

The examiner in *Geometry*, in his report, says, "Numbers six and eight show an excellent knowledge of Euclid, but the papers have been worked in a hurried and careless manner. I should have been better pleased to see fewer propositions attempted, but accompanied by greater neatness in working them: this is a very important point. Number nine is carefully worked, and accurate, extending over 1st and 2nd books only. Number 10 (Geo. Bengough) is deserving of the highest grade (First Class)."

Our readers will observe that but three hours are allowed for working the papers in any one subject—that the questions to be worked are not seen until the candidate takes his place in the class room, in the presence of at least two members of the committee, to commence work—that no assistance is allowed from books, papers, or from each other—and that as soon as the three hours are expired, the papers are folded up and sealed, by the committee, and forwarded to this Board for examination; numbers only being written on the separate papers to designate to whom they belong.

A portion of the examination papers were published in last month's Journal, the remainder will be found below. No papers were sent up for examination in *Mensuration;* nevertheless, we publish the questions set in this subject, as well as the others, for the benefit of any of our young readers who may desire to exercise themselves in working them out.

Examination Papers.

ALGEBRA.

(Three hours allowed.)

1. State and illustrate the principles upon which the algebraic rules of addition and subtraction are founded.

Simplify $\{5a^2-(3ab+4b^2)\}$

$-[3a^2-\{6ab-(7b^2-4a^2)\}+2b^2]$

Find the value of the above when

$a+b=6,\ a-b=2.$

2. Multiply (1) $(3x^2-2xy+5y^2)(4x^2+5xy-7y^2)$

(2) $(x^n-1)(x^n+1)(x^{2n}+1)$.

3. Divide (1) x^5-4x^3+5x-6 by x^2+2x-3

(2) $x^{3n}-1$ by x^n-1.

4. Find the G. C. M. and L. C. M. of

$21x^3-32x^2+40x-24$ & $14x^3+9x^2-46x+24$.

5. Simplify (1) $\dfrac{2}{x^2+2x-3}+\dfrac{3}{x^2+x-6}-\dfrac{5}{x^2-3x+2}$

(2) $\dfrac{4x^2-6x+9}{4x^2+12x+9}\div\dfrac{8x^3-27}{4x^2-9}$.

6. Investigate a rule for finding the square root of any quantity.

Shew that if x^2+px+q be a perfect square, $p^2=4q$.

7. Find the square root of

$4a^2+b^2+9c^2-4ab-12ac+6bc$.

8. Find values of x & y which satisfy both of the equations $ax+by=c$, $lx+my=n$.

If the same values of x & y also satisfy the equation $px+qy=r$ what inference is to be drawn?

9. Solve the equations

(1) $\frac{x}{2}-\frac{1}{3}(x-2)=\frac{1}{4}\left\{x-\frac{2}{3}(2\frac{1}{2}-x)\right\}-\frac{1}{3}(x-5)$.

(2) $\dfrac{3}{x-3}+\dfrac{4}{x-4}=\dfrac{5}{x-5}$.

(3) $\dfrac{x-3}{3}=\dfrac{y+4}{4}$, $x-\dfrac{2y+1}{3}=y+\dfrac{x-5}{2}$.

(4) $2x^2+3xy=26$, $3y^2+2xy=39$.

10. What quantity added to the numerator and denominator of $\frac{3}{8}$ will make it equal to $\frac{4}{7}$.

11. The sum of three fractions whose denominations are 8, 12 and 15, respectively, is $1\frac{31}{120}$; the sum of the numerators is 15, and the difference of the first and second fraction is $\frac{5}{6}$ths of the difference of the second and third. Find the fractions.

12. Find the arithmetic, the geometric and the harmonic means between $5(a+b)$ & $3(a-b)$.

13. Sum (1) $12\frac{1}{8}+10\frac{1}{2}+8\frac{7}{8}+\ldots$ to 12 terms and to n terms.

(2) $108+72+48+\ldots$ to n terms and to infinity.

14. In an A. S. whose first term is 1 and common difference 3, the sum of n terms : the sum of $n+2$ terms as 30 : 41; find n.

GEOMETRY.

(Three hours allowed.)

1. Upon the same base, and upon the same side of it, there cannot be two tri-angles that have their sides which are terminated in one extremity of the base equal to one another, and likewise those which are terminated in the other extremity.

2. If two straight lines cut one another, the vertical or opposite angles shall be equal.

3. The greater angle of every triangle is subtended by the greater side, or has the greater side opposite to it.

4. If a straight line fall upon two parallel straight lines, it makes the alternate angles equal to one another; and the exterior angle equal to