the left hand member = sum of do. in right, and thus only the *remainders* need be considered. We have, therefore, at once

$$\frac{2}{8x-9}+\frac{2}{8x-7}=\frac{1}{4x-5}+\frac{1}{4x-3},\text{ or}$$

$$\frac{32x-32}{(8x-9)(8x-7)}=\frac{8x-8}{(4x-5)(4x-3)},\text{ of which } 8x-8 \text{ is a factor;}$$

$$\therefore\ 8x-8=0,\text{ or } x=1.$$

The remaining expression $64x^3-128x+60=64x^3-128x+63$ has no finite root, as indicated by the disappearance of the coefficients of x^2 and x. The coefficient of x^4 also disappeared. Hence of the four roots which the biquadratic may be regarded as having, $x=1$ is the only finite one.

The above method will be found a labor-saving process in the solution of all similar equations, whether simple or quadratic.

2. Solve $\frac{x-a}{b+c}+\frac{x-b}{a+c}+\frac{x-c}{a+b}=3.$

We have $\frac{x-a}{b+c}-1+\frac{x-b}{a+c}-1+\frac{x-c}{a+b}-1=0$; or

$$\frac{x-(a+b+c)}{b+c}+\frac{x-(a+b+c)}{a+c}+\frac{x-(a+b+c)}{a+b}=0,\text{ of which}$$

$x-(a+b+c)$ is a factor $\therefore\ x=a+b+c.$

3. If ax^2+bx+c, and $a'x^2+b'x+c'$ have a common factor, shew that this factor is $x+\frac{a'c-ac'}{a'b-ab'}$.

Let $x-m$ be the common factor; dividing each of the expressions by $x-m$, the remainders $=0$; i.e., $am^2+bm+c=0$, $a'm^2+b'm+c'=0$; $m^2+\frac{b}{a}m+\frac{c}{a}=0$, $m^2+\frac{b'}{a'}m+\frac{c'}{a'}=0$; subtract $\therefore\ \left(\frac{b}{a}-\frac{b'}{a'}\right)m+\frac{c}{a}-\frac{c'}{a'}=0$, and $m=-\left(\frac{c}{a}-\frac{c'}{a'}\right)\div\left(\frac{b}{a}-\frac{b'}{a'}\right)$, $\therefore\ x-m=x+\frac{a'c-ac'}{a'b-ab'}$.

4. Show without actual multiplication that $(a+b+c)^3-(a+b+c)(a^2-ab+b^2-bc+c^2-ac)-3abc=3(a+b)(b+c)(c+a)$.

Problems of this kind can be solved by the principle that if x, a factor of a given quantity, is put $=0$, the quantity vanishes, and conversely if, when $x=0$ in a given quantity, the quantity vanishes, then x is a factor of it.

Putting $a+b=0$ (*i.e.*, $a=-b$) in the given expression, it becomes $=0$, $\therefore\ a+b$ is a factor, $\therefore\ b+a$, $c+a$, are also factors, since the expression is *symmetrical with respect* to a, b, and c. $\therefore\ (a+b)(b+c)(c+a)$ is a factor. Is there any other factor? There can be no other factor that is a function of $a\ b\ c$, because the given expression is of *three* dimensions, and the factors already found give a quantity of *three* dimensions; but there may be a numerical factor, n suppose, so that the given expression $=n(a+b)(b+c)(c+a)$. Since n is numerical, it is independent of a, b, c; putting $a=b=c=1$, we have $(1+1+1)^3-0-3\times1\times1\times1=n(2)\times(2)\times(2)$: or $8n=24$ $\therefore\ n=3$.

In some questions, to find the *numerical* factor, we must take DIFFERENT values for the letters (a, b, c), as $a=1$, $b=2$, $c=3$, &c.

Notes and News.

ONTARIO.

Peterboro is to have another ward school.

The teachers of the County of Elgin have subscribed $100 for the purchase of a professional library.

German is to be introduced as a branch of study into the Stratford Public Schools.

The Uxbridge High School Board has agreed to pay $5 to each pupil passing the next intermediate examination.

The average attendance at Aylmer High School is 34 and is reported as rapidly increasing.

The Brantford graduates of the Toronto University propose forming themselves into an Alumni Association.

At a recent meeting of the Belleville School Board a resolution was adopted requiring the teachers in the city schools to refrain from keeping the pupils in after hours.

The town council of Barrie has memorialized the Minister of Education with a view to securing the establishment in that town of one of the county training schools.

The number of pupils on the register of the London Public Schools during April was 2,755, of whom 1,453 were boys. The average attendance was 2,012 pupils of whom 1,078 were boys.

It has been decided by the Minister of Education that where a Township Council has passed a valid by-law for exempting a manufacturing establishment from taxation, such property is not liable to school rates.

At a recent teachers' convention in Essex a vote of thanks was passed to the Minister of Education "for the deep interest he evinces in the educational welfare of this Province." A similar vote of thanks was passed to J. C. Patterson, M.P.P.

At the last quarterly meeting of the Elgin Teachers' Association, Mr. Millar was elected President, and Mr. T. Leitch, Corresponding Secretary. A highly practical programme was gone through in a spirited manner.

The official report of the High School Inspector on the state of Thorold High School has been published. The accommodation is described as good, the organization satisfactory, and the progress fair. The inspector makes a note of the lack of apparatus.

The Minister of Education has decided that Roman Catholic Separate School trustees have no power to make a valid legal mortgage of the School property either directly or indirectly.

From a recent decision of the Minister of Education, it appears that the Department may authorize any publisher to print the authorized series of reading books without paying anything to the original publishers. The country at large will enjoy the benefit of the consequent competition.

By an Order in Council, George Edgcumbe, B.A., late Head Master of the Elora High School, has been adjudged guilty of such immorality as to become disqualified from holding the position of a Head Master, and his certificate has been revoked and cancelled. Mr. Edgcumbe's offence was marrying a second wife in Canada while he had only a United States divorce from his first one.

The Picton High School has not for sometime been very cordially supported by the County Council, and for this amongst other reasons there is some talk of allowing it to become extinct. Under the new law it will probably be easier to find the necessary pecuniary support than formerly, and a little perseverance would probably place it beyond danger. It is not desirable to have any county without at least one High School.

At the request of the Chairman of the Central Committee of Examiners it is announced in the *Journal of Education* "that communications or certificates, examinations and other matters relating to the work of the Committee, should be addressed to the Education Office, and not to individual members of the Committee, as the Committee does not desire to receive any letters except such as may be referred to it by the Department.

Judging from present appearances London will soon have a High School of which it will have no reason to be ashamed. Permission has been granted by the Department of Education to sell the old Grammar School site, provided the funds are applied to the erection of a new High School, and it is probable that the Dominion Government will grant a part of the artillery grounds as a site. London has been far too long in moving in this matter, but it is never too late to mend, and in all probability progress will now be rapid.

An Essex grand jury has thrown out the indictment brought against Mr. Sinclair, the head master of the Windsor High School, by the father of a boy who had been chastised in the school. The case created a good deal of excitement, and the result seems to have given general satisfaction. It is not good for either the boy whose case is thus publicly discussed nor for the school to which he belongs to have his part taken in this way. Parents are not always the best judges of the merits in such cases.

The High School entrance examination takes place this year on the third and fourth of July. The intermediate, and those for