

2. From  $3x(x+y) - y(x+4y)$  take  $3y(y-x) - x^2$  and  $x(3x-y) + 5y(x-y)$  and divide the result by  $x+2y$ .

3. Find the greatest common measure of

(1)  $(x+y)^3$  and  $(x-y)^2$

(2)  $x^2+2x-3$  and  $x^2+5x+6$

(3)  $x^3-x^2-2x$  and  $2x^3+3x^2+x$

(4)  $8x^2+6x^3-4x-3$  and  $12x^3+5x^2+x+3$ .

4. Reduce to their lowest terms the fractions

(1)  $\frac{mx-nx}{mnx}$ , (2)  $\frac{3ax^2-15a^2x}{2ax-10a^2}$

(3)  $\frac{2a^2-3a+1}{a^2+a-2}$ , (4)  $\frac{x^4-x^2-2x+2}{2x^3-x-1}$

5. Add the fractions

$\frac{x}{x+y}$ ,  $\frac{y}{y-x}$ ,  $\frac{x^2+y^2}{x^2-y^2}$ ,  $\frac{2xy}{x^2-y^2}$

6. Solve the following equations:

(1)  $\frac{2}{3}(2x+1) = x+3$

(2)  $2x - \frac{2x}{5} - 2\frac{1}{5} = \frac{4x}{11} + \frac{8x}{7} - 1\frac{6}{7}$

(3)  $\frac{2}{3x} + \frac{3}{2x} = 13$

(4)  $\frac{x-7}{x+7} + \frac{1}{2(x+7)} = \frac{2x-15}{2x-6}$

7. Find  $x$  and  $y$  from the following simultaneous equations:—

(1)  $\begin{cases} 7x-6y=10 \\ 6x-7y=3 \end{cases}$

(2)  $\begin{cases} \frac{1}{2}(x+y) = \frac{1}{3}(2x+4) \\ \frac{1}{3}(x-y) = \frac{1}{4}(x-24) \end{cases}$

(3)  $\begin{cases} \frac{3}{x} + \frac{4}{y} = 2 \\ \frac{4}{x} + \frac{3}{y} = 2\frac{1}{2} \end{cases}$

8. Find a number of three digits, each greater by unity than that which follows it, such that its excess above one-fourth of the number formed by inverting the digits shall be 36 times the sum of the digits.

### (3) ENGLISH GROUP.

#### *English Language.*

1. (a) How do English nouns form their plural? (b) Mention three nouns with the plural forms, and distinguish the meaning of each.

2. Give the feminine of *sorcerer*, *actor*, *fox*, *lord*, *hero*, *margrave*.

3. To what parts of speech may *that* and *but* belong? Give examples.

4. Classify adverbs and explain their etymology.

5. What is meant by Assimilation and Dissimilation?

6. Explain the terms *monosyllabic*, *agglutinative*, and *inflectional*, as applied to language; and mention one language of each class.