SHERBORNE SCHOOL.

SUMMER EXAMINATION, 1899. Wednesday. July. 26th

Algebra.

IV B—II.

1. When $a = 2$, $b = 3$, $c = 1$, $d = 0$, find the value of
   (1) $3a - 4b + 6c + 5d$;
   (2) $5ab + 2bc - 4da$;
   (3) $2a^2 + 3b^3 - 4c^4$.

2. Add together
   $3a^3 + 7 - 5a^2$, $2a^2 - 8 - 9a$, $4a - 2a^3 + 3a^2$.

3. From $2x^4 - 3x^2 + 7x - 8$ subtract $x^4 - 2x^3 - 9x + 4$.

4. Multiply $2x - 3y$ by $4x - 7y$; also
   $2x^3 - 3x^2 - 2x + 1$ by $2x^2 + 3x - 2$.

5. Divide $3x^2 + 16x - 35$ by $x + 7$; also
   $3x^4 + 14x^3 + 9x + 2$ by $x^2 + 5x + 1$.

6. Solve the equations:
   (1) $3x - 6 = 8 - 4x$;
   (2) $\frac{x}{2} - 3 = \frac{x}{4} + \frac{x}{5}$;
   (3) $\frac{x}{4} - \frac{9}{2} + \frac{2x}{11} + \frac{x}{2} = \frac{65}{22}$;
   (4) $8(x-3) - (6-2x) = 2(x+2) - 5(5-x)$;
   (5) $\frac{4(x+2)}{3} - \frac{6(x-7)}{7} = 12$.

7. Find the factors of
   $4x^2 - 9y^2$, $8x^3 - 27y^3$, $8x^3 + 27y^3$, $x^2 + 4x + 3$,
   $x^2 + 2x - 3$.

8. Simplify:

(1) $\frac{5x}{3} + \frac{3x}{4} - \frac{7x}{6}$;

(2) $\frac{2x-3}{9} - \frac{x+2}{6} + \frac{5x+8}{12}$;

(3) $\frac{2x^2}{x^2-y^2} - \frac{2x}{x+y}$.

9. Solve the equations:

(1) $\begin{cases} 7x+2y = 47, \\ 5x-4y = 1; \end{cases}$

(2) $\begin{cases} \frac{5x}{6} - y = 3, \\ x - \frac{5y}{6} = 8; \end{cases}$

(3) $3x^2+7x-6 = 0$.

10. Simplify:

(1) $\frac{2a}{a+b} + \frac{2b}{a-b} - \frac{a^2+b^2}{a^2-b^2}$;

(2) $\frac{a^2+b^2}{a^2-ab} \times \frac{ab-b^2}{a^4-b^4} \times \frac{a}{b}$.

11. A sum of 8*l.* 17*s.* is made up of 124 coins, which are either florins or shillings; find the number of each.