

SHERBORNE SCHOOL.

CHRISTMAS EXAMINATION, 1900.

Algebra.

IV B—II.

1. If $a = 1$, $b = 2$, $c = 3$, find the value of:

(1) $3abc - b^2c - 6a^3$.

(2) $2a^2 + 2b^2 + 2c^2 - 2bc - 2ab$.

(3) $\sqrt{3b + 4c - 2a}$.

2. Add together:

$$6x^3 - 2x + 1; \quad 2x^3 + x + 6; \quad x^2 - 7x^3 + 2x - 4.$$

3. Subtract $3a - 2b - c$ from $4a - 3b + 5c$.

4. What must be added to

$$4x^3 - 3x^2 + 2 \text{ to produce } 4x^3 + 7x - 6?$$

5. Multiply

$$2a - 3b \text{ by } 4a - 7b; \text{ also}$$

$$2x^2 - 3xy + 4y^2 \text{ by } 5x^2 - 3xy - 4y^2.$$

6. Divide

$$24a^2 - 65ab + 21b^2 \text{ by } 8a - 3b; \text{ also}$$

$$10 - 16x - 39x^2 + 2x^3 + 15x^4 \text{ by } 2 - 4x - 5x^2.$$

7. Solve the equations:

(1) $2x + 3 = 16 - (2x - 3)$.

(2) $(x + 1)(2x + 1) = (x + 3)(2x + 3) - 14$.

(3) $\frac{x-2}{2} + \frac{x+10}{9} = 5$.

(4) $\frac{4(x+2)}{3} - \frac{6(x-7)}{7} = 12$.

(5) $\frac{x-4}{3} + \frac{2x-3}{35} = \frac{5x-22}{9} - \frac{x+9}{28}$.

8. Find H. C. F. and L. C. M. of

$$8a^2x, \quad 6abxy, \quad 10abx^3y^2.$$

9. Solve the equations :—

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

$$(2) \quad \begin{cases} \frac{x}{7} + \frac{y}{5} = \frac{10}{7}; \\ x + \frac{y}{3} = \frac{14}{3}. \end{cases}$$

10. Resolve into factors :

$$\begin{aligned} & x^2 + 8x + 15; \quad x^2 - 10x + 24; \quad x^2 - 2x - 15; \\ & 25x^2 - 16y^2; \quad 9x^2 - 121; \quad x^2 - (x-y)^2; \\ & 8x^3 - 27y^3; \quad 8x^3 + 27y^3; \quad 6x^2 - x - 77. \end{aligned}$$

11. Find the value of

$$(1) \quad \frac{5x-1}{8} - \frac{3x-2}{7} + \frac{x-5}{4}.$$

$$(2) \quad \frac{x-y}{xy} + \frac{y-z}{yz} + \frac{z-x}{zx}.$$

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

12. Divide 47*l.* among *A*, *B*, and *C*, so that *A* may have 10*l.* more than *B*, and *B* 8*l.* more than *C*.