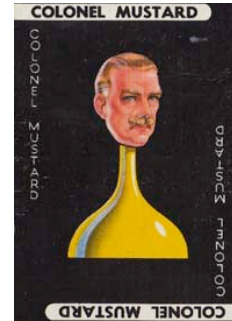
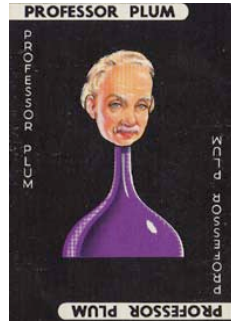
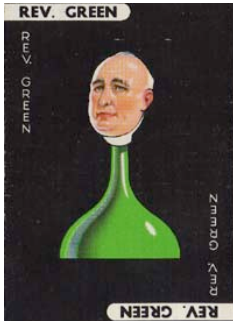




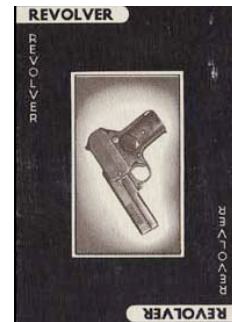
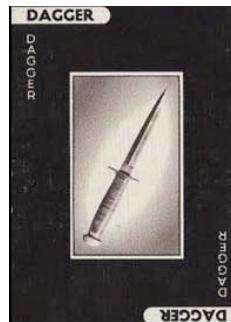
NAME \_\_\_\_\_



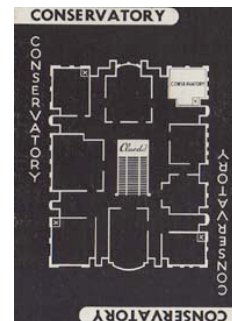
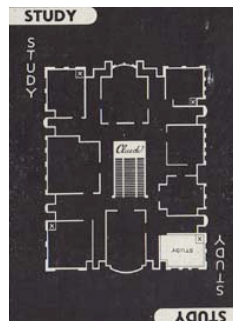
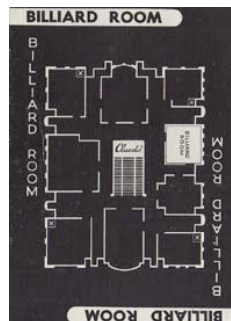
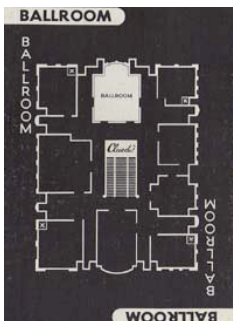
## SUSPECTS



## WEAPONS



## ROOMS





# 1. SUBSTITUTION



EVALUATE THESE EXPRESSIONS, USING  $A = 5$ ,  $B = 4$  AND  $C = -2$

1.  $2ab$

2.  $3b^2$

3.  $a + bc$

4.  $12 - ac$

5.  $\frac{3b}{a + c}$

6.  $3(a - 5b)$

7.  $b + c^2$

8.  $(b + c)^2$

9.  $\sqrt{a^2 - b^2}$

10.  $\frac{20}{a} - 4c$



## 2. EXPANDING SINGLE BRACKETS



EXPAND AND SIMPLIFY:

1.  $5(x - 2)$

2.  $4(5 - 3x)$

3.  $2(6x + 7y)$

4.  $x^2(x^3 + x)$

5.  $3x(5x - 2y)$

6.  $2a^4(3a^5 - a^2)$

7.  $ab(6ab^3 - 1)$

8.  $6x^2y(3y + 7x)$

9.  $5(2x - 1) + 3(4 - 3x)$

10.  $4(x^2 + 4) - 2(x^2 - 1)$



### 3. FACTORISING SINGLE BRACKETS



FACTORISE:

1.  $6x + 3$

2.  $14 - 21y$

3.  $8a - 6b$

4.  $x^2 + x$

5.  $y^5 - y^3$

6.  $6x^4 + 8x^2$

7.  $10y + 5y^8$

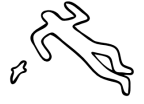
8.  $x^2y^5 - x^4y^3$

9.  $4x^2y^2 + 3xy$

10.  $3a^4b + 9a^2b^5$



## 4. SOLVING LINEAR EQUATIONS



SOLVE:

1.  $4x - 14 = 30$

2.  $3(x + 2) = 51$

3.  $\frac{x + 7}{4} = 5$

4.  $6x + 4 = 2x + 32$

5.  $5(x + 1) = 2(x + 16)$

6.  $9x + 5 = 6x - 1$

7.  $8x - 4 = 2x - 1$

8.  $2x + 7 = 19 - 2x$

9.  $16 - 3x = 36 - 8x$

10.  $\frac{4x + 10}{2} = 7 + 6x$



## 5. EXPANDING DOUBLE BRACKETS



EXPAND AND SIMPLIFY:

1.  $(x+2)(x+8)$

2.  $(x+5)(x+3)$

3.  $(x+6)(x-4)$

4.  $(x-2)(x+7)$

5.  $(x+5)(x-9)$

6.  $(x-7)(x+1)$

7.  $(x-6)(x-7)$

8.  $(x-4)(x-3)$

9.  $(2x+3)(3x-5)$

10.  $(3x-2)^2$





## 6. SOLVING QUADRATIC EQUATIONS



SOLVE:

1.  $x^2 + 11x + 30 = 0$

2.  $x^2 + 6x + 8 = 0$

3.  $x^2 + 5x - 14 = 0$

4.  $x^2 + 5x - 6 = 0$

5.  $x^2 - 5x - 36 = 0$

6.  $x^2 - x - 12 = 0$

7.  $x^2 - 13x + 30 = 0$

8.  $x^2 - 9x + 20 = 0$

9.  $x^2 + 4x = 32$

10.  $x^2 - 2x = 15$



## 7. CHANGING THE SUBJECT



MAKE  $x$  THE SUBJECT OF THESE FORMULAE:

1.  $4x + y = 8$

2.  $2(x - a) = b$

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

4.  $x^2 + a = b$

5.  $(x + a)^2 = b$

6.  $\sqrt{x - a} = b$

7.  $\frac{x}{a} + b = c$

8.  $\sqrt{\frac{x}{a}} = b - c$

9.  $x(a - b) = c$

10.  $\frac{a}{x + b} = c$



## 8. SIMULTANEOUS LINEAR EQUATIONS



SOLVE:

1.  $3x + y = 23$   
 $6x + y = 44$

2.  $4x - 3y = 21$   
 $2x + 3y = 33$

3.  $5x + 2y = 13$   
 $6y + 5x = 29$

4.  $5x - 4y = 2$   
 $10x - 4y = 32$

5.  $2x + 7y = 48$   
 $x + 3y = 21$

6.  $8x - 3y = 44$   
 $2y - 4x = -20$



## 9. ALGEBRAIC FRACTIONS



WRITE AS SIMPLIFIED, SINGLE FRACTIONS:

1.  $\frac{x}{3} + \frac{x}{4}$

2.  $\frac{2x}{5} - \frac{3x}{10}$

3.  $\frac{x-4}{3} + \frac{x}{6}$

4.  $\frac{x+2}{8} - \frac{x}{12}$

5.  $\frac{2}{x} - \frac{1}{3x}$

6.  $\frac{4}{a} + \frac{5}{b}$

7.  $\frac{1}{x} + \frac{1}{x^2}$

8.  $\frac{4x}{y^3} \times \frac{3y^2}{2x}$

9.  $\left(\frac{5x^3}{3y^4}\right)^2$

10.  $\frac{3x}{2y} \div \frac{5x}{4y}$