Maths Department   **Algebra – Distributive Law**   **Home Learning Level 4**

<u>You must show your workings!</u>

<u>Non-calculator</u>

1. Find 90% of £310   2. Find 2/3 of 720kg

3. What two numbers multiply to make 24 and add to make 11?

4. Simplify the following expressions.

a).   4t - 7s + 5t + 2s   b).   6y + 9z – 2y – 12   c).   12k + 3 + 7m – k – 9m + 4

5. Remove the brackets.

a).   2(x + 7)   b).   9(y – 2)   c).   4(3r – 7)   d).   10(1 – 2k)

6. Remove the brackets and simplify where possible.

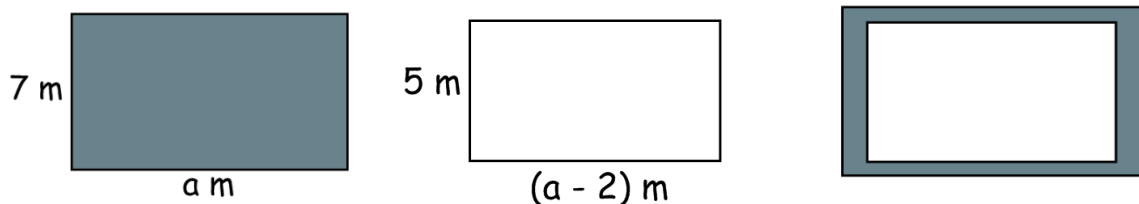   a)   3(n - 2) + 7   b)   3 + 5(y + 3)

    c)   7x – (x – 3)   d)   -5(2 – m) – 3m

    e)   2(w - 3) – 5(3w + 2)   f)   7(5 – 2y) – 4(2 + 3y)

7.

7 m a m   5 m $(a - 2)$ m

    a)   Find an expression for the area of the grey rectangle.
    b)   Find an expression for the area of the white rectangle.
    c)   Find an expression, with brackets for the area of the grey border.
    d)   Simplify the area expression found in part c.

Maths Department   **Algebra – Factorising**   **Home Learning Level 4**

<u>You must show your workings!</u>

1.Calculate   -8 + (-9)   2. Find 25% of $97

3. Write down all the factors of   a).   20   b).   16   c).   36

4. Write down the highest common factor (hcf) of

a).   8 and 40   b).   9 and 30   c).   4x and 18y   d). $16x^2$ and 28x

5. Factorise:

a).   4x + 12   b).   5y - 20   c).   12k + 18   d).   16p – 40r

e).   6x – 12y + 8z   f).   21 – 14x   g). $20k^2$ – 50k   h).   90pr – 40pq

CLEARLY SHOW ALL YOUR WORKINGS

<u>Non-calculator:</u>

1) Evaluate:

a) $0{\cdot}4^4$ **b)** $234500 \times 4{\cdot}2$ **c)** $\frac{7}{15}$ of 555m

2) Write down the equation of these lines:

a) gradient 3 passing through (2, 5)   **b)** gradient -2 passing through (3, -4)

c) gradient -6 passing through (-1, 9)   **d)** gradient ½ passing through (-11, -23).

3) Draw the following lines on the same grid form -10 to 10 in both the *x* and *y* direction:

a) $y = 2x + 1$ **b)** $2y = -2x + 10$ **c)** $3y + 9x - 18 = 0$

4) Calculate the equation of these lines:

a) passing through (1, 4) and (2, 6)   **b)** passing through (2, 3) and (6, 1)

c) passing through (-3, 5) and (1, 6)   **d)** passing through (-4, 5) and (2, -7)

CLEARLY SHOW ALL YOUR WORKINGS

1) Solve these equations graphically:

$y = 2x + 3$ and $y + x = 12$

2) Solve these equations:

a) $y - 5x = -2$ **b)** $3x - 5y = 11$ **c)** $3a + 5b = -1$

$3y - 2x = 33$ $4x + 3y = 5$ $2a - 3b = 12$

3) In a bar, 3 glasses of wine and 2 coffees cost £12, and 4 glasses of wine and 4 coffees cost £18. Calculate the cost of 5 glasses of wine and 3 coffees.

4) Jimmy plays in a snooker tournament which consists of 20 games. He wins x games and loses y games.

a) Write down an equation in x and y to illustrate this information.

He is paid £6 for each game he wins and £3 for each game he loses.

b) If Jimmy wins £102 write down another equation in x and y to illustrate this information.

c) How many games did Jimmy win?