GCSE Maths homework sheet (higher) Week 15

1. Expand these expressions:

(i) $(x + 3)(x + 5)$ = ... (1)

(ii) $(x + 3)(x – 5)$ = ... (1)

(iii) $(–x – 3)(x – 5)$ = ... (1)

(iv) $(x – 3)(–x – 5)$ = ... (1)

2. Factorise these expressions:

(i) $x^2 + 13x + 30$ . . . . . (1)

(ii) $x^2 – 2x – 35$ . . . . . (1)

(iii) $10 – 7g + g^2$ . . . . . (1)

(iv) $–35 + 2k + k^2$ . . . . . (1)

3. (a) Expand and simplify the expression $(m – n)^2$ . . . . . (2)

(b) Show that $\dfrac{(t+r)^2+(t-r)^2}{2} = t^2 + r^2$ (4)

(c) Hence, or otherwise, find the value of $105^2 + 95^2$ (3)

4. (a) Simplify $(g^{-2})^{-3}$ . . . . . (2)

(b) Factorise $(a + b)^2 + 5(a + b)$ . . . . . (2)

5. The length of a rectangle is exactly twice its width. The area of the rectangle is $2x^2 + 12x – 18$.

Find the dimensions of the rectangle Length = ... Width = ... (4)

6. (a) Factorise the expression $9x^2 – 6x + 4$ . . . . . (2)

(b) Simplify the expression $\dfrac{6x^2+5x-6}{9x^2-12x+4}$ . . . . . (3)

Divide your marks by 30, then multiply by 100 to get a percentage. Write the percentage here, to 3 sigificant figures: . . . . . %