S 3 MATHS REVISION Topic: Quadratics Name: …….

Students need to revise: i) Expansion of 2 brackets

ii) Perfect squares

iii) Forming quadratic equations

E.g: Expansion of brackets

$(x+3)(x-6)$ $x(x-6)+3(x-6)$ $x^2-6x+3x-18$ $x^2-3x-18$	$(x+3)(x+8)$ $x(x+8)+3(x+8)$ $x^2+8x+3x+24$ $x^2+11x+24$	$(2x+1)(x+5)$ $2x(x+5)+1(x+5)$ $2x^2+10x+x+5$ $2x^2+11x+5$	$(x-3)(x-9)$ $x(x-9)-3(x-9)$ $x^2-9x-3x+27$ $x^2-12x+27$
	Perfect	Squares	
$(x+5)^2$ $(x+5)(x+5)$ $x(x+5)+5(x+5)$ $x^2+5x+5x+25$ $x^2+10x+25$	$(x-7)^2$ $(x-7)(x-7)$ $x(x-7)-7(x-7)$ $x^2-7x-7x+49$ $x^2-14x+49$	$(2x+3)^2$ $(2x+3)(2x+3)$ $2x(2x+3)+3(2x+3)$ $4x^2+6x+6x+9$ $4x^2+12x+9$	$(3x-7)^2$ $(3x-7)(3x-7)$ $3x(3x-7)-7(3x-7)$ $9x^2-21x-21x+49$ $9x^2-42x+49$

E.g

Form an equation whose roots are;

$\{6,\ 8\}$ let $x=6,\ x=8$ $(x-6)(x-8)=0$ $x(x-8)-6(x-8)=0$ $x^2-8x-6x+48=0$ $x^2-14x+48=0$	$\{-4,\ 12\}$ $x=-4,\ x=12$ $(x+4)(x-12)=0$ $x(x-12)+4(x-12)=0$ $x^2-12x+4x-48=0$ $x^2-8x-48=0$	$\left\{\frac{2}{3},\ -8\right\}$ $x=\frac{2}{3},\ x=-8$ $(3x-2)(x+8)=0$ $3x(x+8)-2(x+8)=0$ $3x^2+24x-2x-16=0$ $3x^2+22x-16=0$	$\left\{-\frac{4}{5},\ -\frac{1}{3}\right\}$ $x=-\frac{4}{5},\ x=-\frac{1}{3}$ $(5x+4)(3x+1)=0$ $15x^2+5x+12x+4=0$ $5x(3x+1)+4(3x+1)=0$ $15x^2+17x+4=0$

EXERCISE

Expand and simplify the following:

1.	$(x+4)(x+6)$	2.	$(x+8)(x-9)$
3.	$(x+5)(x-8)$	4.	$(x-9)(x-7)$
5.	$(2x+3)(x+2)$	6.	$(3+x)(6-x)$
7.	$(x+3)(x-3)$	8.	$(x-5)(x+5)$
9.	$(x+3)^2$	10.	$(x-5)^2$

11.	$(2x+1)^2$	12.	$(3x-5)^2$
13.	$(2x+y)^2$	14.	$(2x+y)(2x-y)$

EXERCISE 2: Form quadratic equations with the given roots

1.	$\{3, \quad 4\}$.	2.	$\{-3, \quad -4\}$
3.	$\{-9, \quad 2\}$	4.	$\{6, \quad -6\}$

5.	$\left\{3, \quad \frac{1}{2}\right\}$	6.	$\left\{-5, \quad \frac{2}{3}\right\}$
7.	$\left\{\frac{2}{5}, \quad -4\right\}$	8.	$\left\{-\frac{1}{3}, \quad -\frac{1}{4}\right\}$
9.	$\left\{\frac{2}{7}, \quad \frac{1}{4}\right\}$	10.	$\left\{-\frac{1}{3}, \quad \frac{1}{3}\right\}$
11.	$\{-7, \quad 12\}$	12.	$\left\{3, \quad -\frac{2}{3}\right\}$