	S3 Revision for the May Test - Algebra	
1	Remove the brackets and simplify $(2x-3)(7x+15)$	2
2	Remove the brackets and simplify $(2x+3)(x^2-5x+3)$	3
3	Factorise (a) x^2-25 (b) $2x^2-50$ (c) $x^2+3x-40$	1 2 2
4	Simplify $\frac{x^2-25}{(x+5)^2}$	2 3
5	Simplify $\frac{2y}{x^2}\times\frac{x^3}{6y^2}$	2
6	Express $\frac{2}{x}+\frac{7}{y}$ as a single fraction in the simplest form	2
7	Change the subject of the formula $x=y^2-m$ to y	2
8	Change the subject of the formula $m=\frac{3t+1}{p}$ to t	3
9	Write $x^2+10x+17$ in completed square form $(x+a)^2+b$	2
10	Write x^2-4x+5 in completed square form $(x+a)^2+b$	2
11	A straight line passes through the points (-4,1) and (1,16). Find the equation of the straight line in the simplest form.	3
12	A straight line has the equation $y=-2x+5$ (a) State the gradient of this line (b) State the coordinates of the point where the line crosses the *y*-axis	1 1
13	Solve $3+2(5-x)>14$	3
14	Solve $4+\frac{x}{3}=x-6$	3

	Algebra – Answers
1	$(2x-3)(7x+15) = 14x^2+30x-21x-45 = 14x^2+9x-45$
2	$(2x+3)(x^2-5x+3) = 2x^3-10x^2+6x+3x^2-15x+9$ $= 2x^3-7x^2-9x+9$
3	(a) $x^2-25=(x+5)(x-5)$ (b) $2x^2-50=2(x^2-25)=2(x+5)(x-5)$ (c) $x^2+3x-40=(x+8)(x-5)$
4	$\frac{x^2-25}{(x+5)^2} = \frac{(x+5)(x-5)}{(x+5)^2} = \frac{x-5}{x+5}$
5	$\frac{2y}{x^2}\times\frac{x^3}{6y^2} = \frac{2x^3y}{6x^2y^2} = \frac{x}{3y}$
6	$\frac{2}{x}+\frac{7}{y} = \frac{2y+7x}{xy}$
7	$x = y^2-m \rightarrow x+m = y^2 \rightarrow \boldsymbol{y=\sqrt{x+m}}$
8	$m=\frac{3t+1}{p} \rightarrow pm = 3t+1 \rightarrow pm-1=3t \rightarrow \boldsymbol{t=\frac{pm-1}{3}}$
9	$x^2+10x+17 = (x+5)^2-8$
10	$x^2-4x+5 = (x-2)^2+1$
11	$y=3x+13$
12	The gradient is $m=-2$ The *y*-intercept is (0,5)
13	Multiply out the bracket $3+10-2x>14$ Collect like terms $13-2x>14$ $-2x>1$ Solve for *x* $-x>\frac{1}{2}$ Solve for *x* $x<-\frac{1}{2}$ or $-\frac{1}{2}>x$
14	Multiply through by 3 $12+x=3x-18$ Collect like terms $30=2x$ Solve for *x* $15=x$ *or* $x=15$