STATS1 REVISION SELECTIONS AND ARRANGEMENTS (FROM OCR PAPERS)

9) i) a)

Algebra: A, B, C, D Geometry: G, H, I, J

Different arrangements $= 8! = 40{,}320$

b)

A G A G A G A G

4	4	3	3	2	2	1	1

$= 576$ arrangements starting with algebra

Could have started with Geometry so $576 \times 2 = 1152$ arrangements

Prob (No 2 algebra and no 2 geometry together) $= \dfrac{1152}{40{,}320}$

$= 0.0286$

9) ii) a)

$4! \times 4! = 576$

Algebra Geometry

b)

A H

3	2	1	1	1	3	2	1

$= 36$ arrangements

Prob (A and H next to each other) $= \dfrac{36}{576} = 0.0625$

c)

B J

1	3	2	1	3	2	1	1

$= 36$ arrangements

B J

1	3	2	1	3	2	1	1

$= 36$ arrangements

B J

3	1	2	1	3	2	1	1

$= 36$ arrangements

Total 108

Prob (B and J separated by >4) $= \dfrac{108}{576} = \dfrac{3}{16} = 0.1875$