

STATS 1 REVISION ARRANGEMENTS (FROM OCR PAPERS)

3) i) a) 1, 2, 3, 4, 5, 6, 7, 8, 9

$${}^9P_4 \quad \begin{array}{|c|c|c|c|} \hline 9 & 8 & 7 & 6 \\ \hline \end{array} = 3024$$

b) $\begin{array}{|c|c|c|c|} \hline 8 & 7 & 6 & 5 \\ \hline \end{array} = 1680$

(Place restricted box first. 5 choices for units 1, 3, 5, 7, 9)

3) ii) a) Selections with 4 odd digits = ${}^5C_4 = 5$

Selections with 3 odd and 1 even = ${}^5C_3 \times 4C_1$
 $= 10 \times 4 = 40$

Total desirable selections = $40 + 5 = 45$

Total number of unrestricted selections = ${}^9C_4 = 126$

Prob (4 digits include at least 3 odd digits) = $\frac{45}{126} = 0.3571$

b) Total 28 $\Rightarrow (9, 8, 7, 4), (9, 8, 6, 5)$

only these two selections total 28

$$P(4 \text{ digits add up to } 28) = \frac{2}{126} = \frac{1}{63} = 0.0159$$