Oct.14 sheet

1. one letter + two letter + three letter

$6 + 6 \cdot 5 + 6 \cdot 5 \cdot 4$

$= 156$ ways

2. 8 digits

3-digit + 4 digit + 5 digit

$8 \cdot 7 \cdot 6 + 8 \cdot 7 \cdot 6 \cdot 5 + 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4$

or

${}_8P_3 + {}_8P_4 + {}_8P_5$

$= 8736$

3. Hearts → 13

4 card or 5 card

${}_{13}P_4 + {}_{13}P_5 = 171600$

4. 3 person + 4 person

${}_8P_3 + {}_8P_4 = 2016$

Paths

1a) FFFDDDDDRRRR

$\frac{12!}{3!5!4!} = 27720$

b) $\frac{13!}{5!4!4!} = 90090$

c) $\frac{11!}{8!4!4!} = 11550$

2a) $\frac{5!}{3!2!} = 10$

b) $\frac{9!}{5!4!} = 126$