

HW 5

subsets: 21

strings: 2520

$$1. \quad a) = \frac{7!}{2!} \cdot \frac{1}{5!} \cdot \binom{7}{5} = \frac{7!}{2!}$$

$$2 \quad \binom{13}{2} = \underbrace{\left( \frac{13!}{7!} \cdot \frac{1}{2!} \right)}_{\text{pairs}} \cdot \underbrace{\binom{4}{2} \binom{4}{2}}_{\text{subsets}} = \underbrace{\binom{11}{1} \binom{4}{1}}_{\text{last card}} = 173, 552$$

3

boxes = 7  
items = 16

$$\left( \frac{21!}{16!} \cdot \frac{1}{5!} \right) \cdot \binom{16}{1} = 325, 564$$

4

4

(3)

(9)

2 → 6

3 → 5

4 → 4

5 → 42

$$42 \cdot 5 \cdot 2 = 420$$

45678 to 1000 1, 2

3+4+

$$5. \quad (4 \cdot 4) \cdot (4 \cdot 3) = 192$$

	↓	↓	↓	↓
1111	1111	1011	1111	1111
1110	0111	1111	1111	1101
2+14+				