

Solutions

① $S = \{1, 2, 3, 4, 5, 6\}$

$A = \{1, 2\}$ $B = \{1, 3, 5\}$ $C = \{3, 6\}$

a) $P(A) = \frac{2}{6} = \frac{1}{3}$

b) $P(B) = \frac{3}{6} = \frac{1}{2}$

c) $P(C) = \frac{2}{6} = \frac{1}{3}$

d) $B \text{ or } C = \{1, 3, 5, 6\}$

$P(B \text{ or } C) = \frac{4}{6} = \frac{2}{3}$

e) $A \text{ and } B = \{1\}$

$P(A \text{ and } B) = \frac{1}{6}$

② Die #1 \ Die #2 1 2 3 4 5 6

1

2

3

4

5

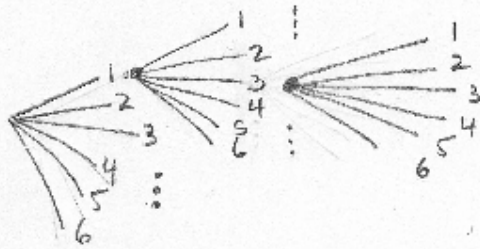
6

2	3	4	5		
3	4	5			8
4	5			8	
5			8		
		8			
	8				

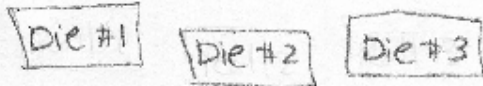
$n(A) = 11$ $n(S) = 36$

$P(A) = \frac{11}{36} \approx 0.31$

③



Visualize all possible outcomes with a tree diagram



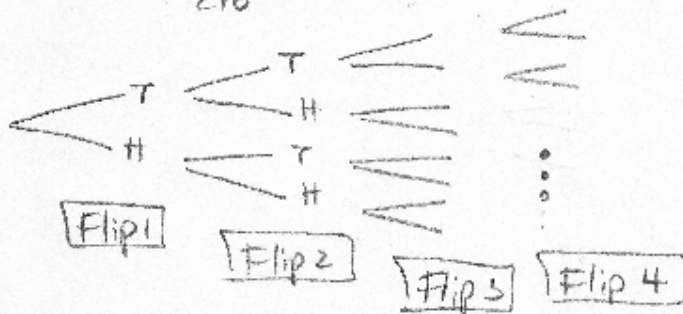
$$n(S) = 6 \times 6 \times 6 = 216$$

$$A = \{ 111, 112, 121, 211 \}$$

$$n(A) = 4$$

$$P(A) = \frac{4}{216} \approx 0.02$$

④



$$n(S) = 2 \times 2 \times 2 \times 2 = 16$$

$$A = \{ TTTT, TTHT, THTT, HTTT, HHHH \}$$

$$n(A) = 5$$

$$P(A) = \frac{5}{16} = 0.3125$$

⑤ From Question 4, $n(S) = 16$

$$A = \{HH\bar{T}\bar{T}, H\bar{T}H\bar{T}, H\bar{T}\bar{T}H, \bar{T}H\bar{T}H, \bar{T}H\bar{T}\bar{T}H, \bar{T}\bar{T}H\bar{T}H\}$$

$$n(A) = 6$$

$$P(A) = \frac{6}{16} = 0.375$$

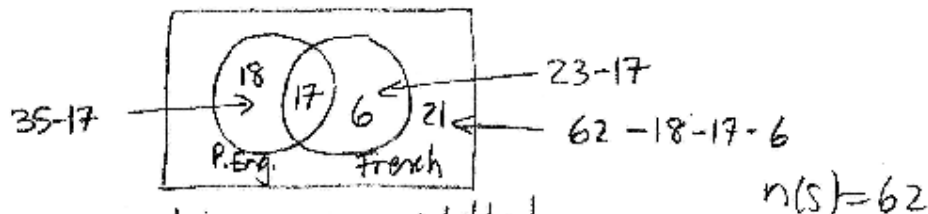
⑥ $n(S) = 37 + 41 + 98 + 55 = 231$

a) $P(\text{female}) = \frac{41 + 55}{231} \approx 0.42$

b) $P(\text{male or contract}) = \frac{37 + 41 + 98}{231} \approx 0.76$

c) $P(\text{female and permanent}) = \frac{55}{231} \approx 0.24$

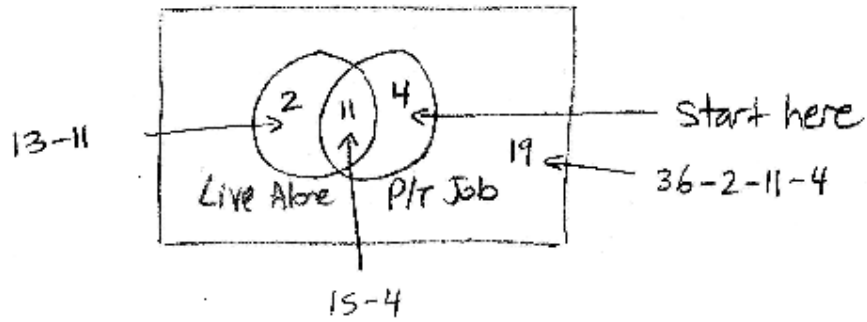
⑦



$$n(\text{P. Eng. and no French}) = 18$$

$$P(\text{P. Eng. and no French}) = \frac{18}{62} \approx 0.29$$

8



$$n(S) = 36$$

$$n(\text{Live Alone or P/T Job}) = 2 + 11 + 4 = 17$$

$$P(\text{Live Alone or P/T Job}) = \frac{17}{36} \approx 0.47$$

9

$$n(S) = 52$$

$$A = \{A\heartsuit, 2\heartsuit, \dots, K\heartsuit, 8\diamondsuit, 8\clubsuit, 8\spadesuit\}$$

$$n(A) = 16$$

$$P(A) = \frac{16}{52} \approx 0.31$$

10

$$n(S) = 52$$

$$A = \{2\heartsuit, 3\heartsuit, \dots, 7\heartsuit, 2\diamondsuit, 3\diamondsuit, \dots, 7\diamondsuit\}$$

$$n(A) = 12$$

$$P(A) = \frac{12}{52} \approx 0.23$$