A.

(1) Random phenomenon - The uncertainty of which two balls will be selected and what their colors will be.

(2) B. Shample space - Two balls for each hand.

$2 \times 2 = 4$

(R, R) (R, B) (B, B) (B, R)

C. Two events - (R, R) , (R, B)

(2) Total possible outcome - $2^3 = 8$

(H, H, H) (H, T, H) (H, T, T) (T, H, H) (T, T, H)
(T, H, T) (H, H, T) (T, T, T)

Probability of at most 2 heads = $\frac{7}{8}$

$= 87.5\ \%$

(3) Events,

A = (1,1) (1,2) (2,2) (2,1)

B = Min^m value to be 2

= (2,2) (2,3) . . . . . .

Here (2,2) is happening in both, hence they are ~~not~~ dependent.

(4) P(A) = 0.3

P(B|A) = 0.8

P(B| not A) = 0.1

Bayes theorem:-

$$P(A|B) = \frac{P(B|A) \times P(A)}{P(B)}$$

$$P(B) = P(B|A) \times (P(A) + P(B|\text{not } A) \times P(\text{not } A)$$

$$= ((0.8) \times (0.3)) + (0.1 \times 0.7)$$

$$= 0.24 + 0.07$$

$$= 0.31$$

$$P(A|B) = \frac{0.8 \times 0.3}{0.31} = 0.774 = 77\%$$

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Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

(5) $P(A) = 0.1$

$P(B|A) = 0.95$

$P(B|\text{not } A) = 0.5$

Bayes theorem:-

$$P(A|B) = \frac{P(B|A) \times P(A)}{P(B)}$$

$$P(B) = P(B|A) \times P(A) + P(B|\text{not } A) \times P(\text{not } A)$$

$$P(B) = (0.95 \times 0.1) + (0.5 \times 0.9)$$

$$= 0.545$$

$$P(A|B) = \frac{0.95 \times 0.1}{0.545}$$

$$= 0.174$$

17.4%