13. M · Probability

Starter Quiz ·

AQA · A-Level · Mathematics Name: _____ Score: _____

1. In the game-show puzzle, what is the probability of winning if the contestant does not switch? Give a decimal to 3 d.p.

   _____

2. $\mathrm{P}(A) = 0.4$ and $\mathrm{P}(B \mid A) = 0.25$. Find $\mathrm{P}(A \cap B)$.

   _____

3. $\mathrm{P}(A) = 0.5$, $\mathrm{P}(B) = 0.3$ and $\mathrm{P}(A \cap B) = 0.15$. A and B are independent.

   ☐ True ☐ False

4. 2% have a condition. A test is positive for 90% of those with it and 5% of those without. Find P(condition | positive) to 3 d.p.

   _____

5. A bag has 4 green and 6 yellow sweets. Two are eaten. Find P(both green).

   ☐ $\frac{2}{15}$

   ☐ $\frac{3}{10}$

   ☐ $\frac{1}{5}$

   ☐ $\frac{4}{25}$

6. $\mathrm{P}(A) = 0.6$, $\mathrm{P}(B) = 0.5$, $\mathrm{P}(A \cap B) = 0.3$. Find $\mathrm{P}(A \cup B)$.

   _____

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Answers ·

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1. **0.333**

   The first pick is right with probability $\frac{1}{3}$; switching wins the other $\frac{2}{3}$.

2. **0.1**

   0.4×0.25.

3. **True**

   $0.5 \times 0.3 = 0.15$.

4. **0.269**

   $\dfrac{0.018}{0.018 + 0.049} = \dfrac{0.018}{0.067}$.

5. $\frac{2}{15}$

   $\frac{4}{10} \times \frac{3}{9} = \frac{12}{90}$.

6. **0.8**

   $0.6 + 0.5 - 0.3$.