15. O · Statistical hypothesis testing — Starter Quiz ·

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

1. In Fisher's test, how many ways are there to choose which 4 of the 8 cups had milk first?

   _____

2. A drug company claims a cure rate above 40%. Which alternative hypothesis tests the claim?

   ☐ $H_1 : p = 0.4$

   ☐ $H_1 : p < 0.4$

   ☐ $H_1 : p \neq 0.4$

   ☐ $H_1 : p > 0.4$

3. Under H_0, $X \sim B(10, 0.5)$. Find $P(X \geq 9)$ to 4 d.p.

   _____

4. At the 5% level, a tail probability of 0.07 leads to rejecting H_0.

   ☐ True ☐ False

5. In a two-tailed test at the 10% level, what probability goes in each tail?

   ☐ 2.5%

   ☐ 20%

   ☐ 5%

   ☐ 10%

6. Which is the best conclusion when $H_0 : p = 0.3$ is not rejected?

   ☐ The proportion is 0.3

   ☐ H_1 is false

   ☐ The test proves nothing changed

   ☐ There is insufficient evidence that the proportion has changed

15. O · Statistical hypothesis testing — Answers ·

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1. **70**

   $\binom{8}{4} = 70$.

2. $H_1 : p > 0.4$

   The claim is "greater than".

3. **0.0107**

   $\frac{10+1}{1024}$.

4. **False**

   $0.07 > 0.05$.

5. **5%**

   Half of 10%.

6. **There is insufficient evidence that the proportion has changed**

   Failing to reject is not proof.