

Paper Reference 8MA0–21
Pearson Edexcel
Level 3 GCE

Mathematics
Advanced Subsidiary
Paper 21: Statistics

Wednesday 22 May 2019 – Morning

Diagram Book

**In the boxes below, write your name,
centre number and candidate number.**

| | | | | | | | | | | |
|-----------------------------|--|--|--|--|--|--|--|--|--|--|
| Surname | | | | | | | | | | |
| Other names | | | | | | | | | | |
| Centre Number | | | | | | | | | | |
| Candidate Number | | | | | | | | | | |

INSTRUCTIONS

There may be spare copies of some diagrams in case you need them.

**THIS DIAGRAM BOOK MUST BE
RETURNED WITH THE ANSWER
BOOK AT THE END OF THE
EXAMINATION.**

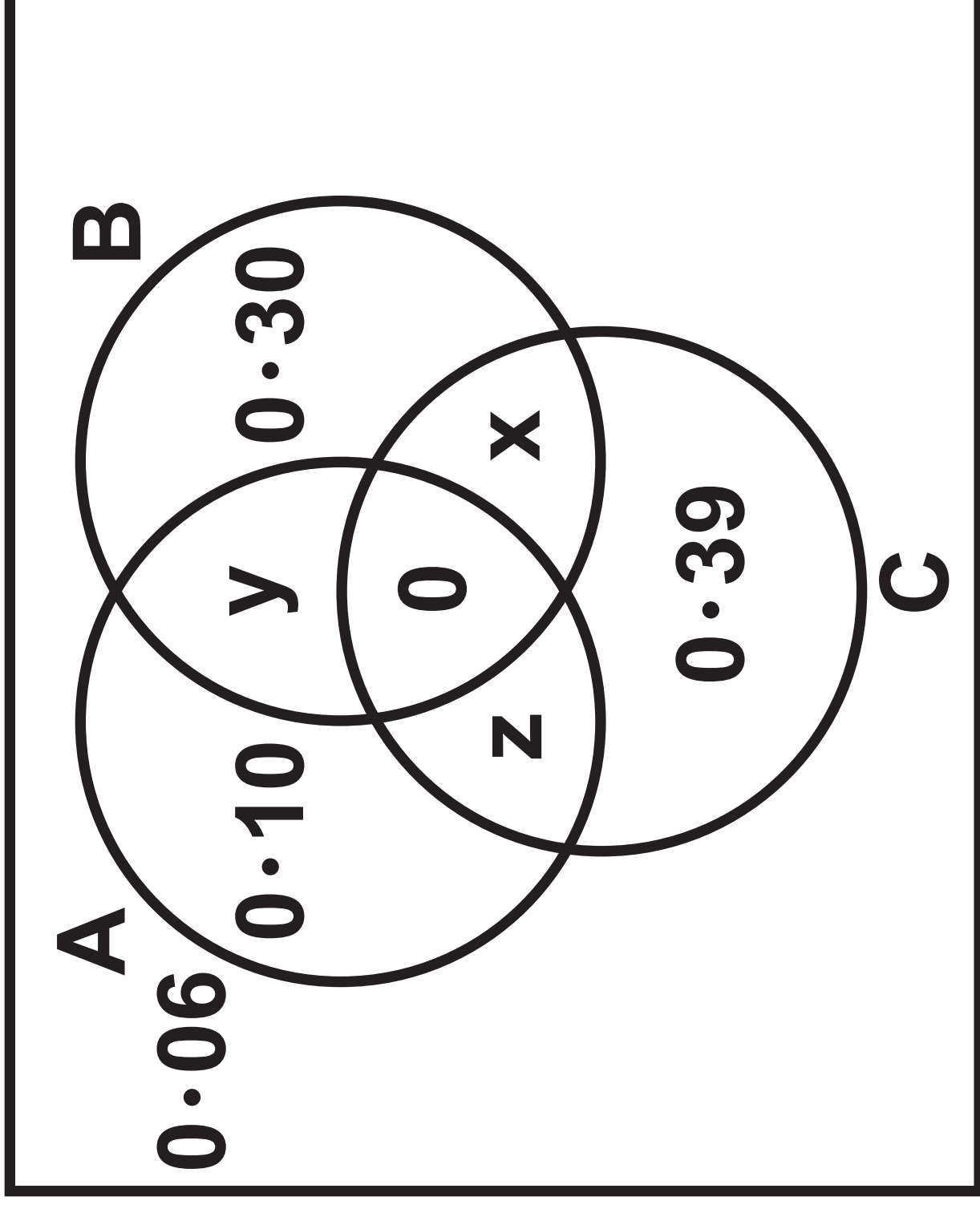
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| Daily total rainfall (r mm) | Frequency | Midpoint (x mm) |
|--------------------------------|-----------|--------------------|
| $0 \leq r < 0.5$ | 121 | 0.25 |
| $0.5 \leq r < 1.0$ | 10 | 0.75 |
| $1.0 \leq r < 5.0$ | 24 | 3.0 |
| $5.0 \leq r < 10.0$ | 12 | 7.5 |
| $10.0 \leq r < 30.0$ | 17 | 20.0 |

You may use $\sum fx = 539.75$ and $\sum fx^2 = 7704.1875$

Question 5

$$H_0 : p = 0.15$$

$$H_1 : p \geq 0.15$$

Let X = the number of customers who buy chocolate.

$$X \sim B(30, 0.15)$$

$$P(X = 8) = 0.0420$$

$$0.0420 < 0.05 \text{ so reject } H_0$$

There is sufficient evidence to suggest that the proportion of customers buying chocolate has increased.