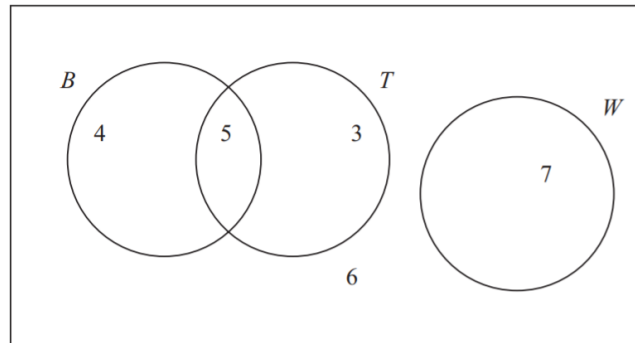


1. The figure shows how 25 people travelled to work.



Their travel to work is represented by the events, B ; bicycle, T ; train and W ; walk.

a. Write down 2 of these events that are mutually exclusive. Give a reason for your answer.

(2)

b. Determine whether or not B and T are independent events.

(3)

One person is chosen at random.

Find the probability that this person,

c. Walks to work.

d. Travels to work by bicycle and train.

(1)

e. Given that this person travels to work by bicycle, find the probability that they will also take the train.

(2)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Solutions

1a.

B and W or T and W	M1
As there is no overlap between these events.	M1

1b.

$P(B) = \frac{9}{25}$ $P(T) = \frac{8}{25}$ $P(B \text{ and } T) = \frac{5}{25}$	M1
$P(B \text{ and } T) \neq P(B) \text{ and } P(T)$ $0.2 \neq 0.36 \times 0.32$	M1
Therefore, B and T are not independent	M1

1c.

$P(W) = \frac{7}{25}$	M1
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1d.

$P(B \text{ and } T) = \frac{5}{25}$	M1
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1e.

$P(T \text{ given } B) = \frac{0.2}{\frac{5+4}{25}}$	M1
$= \frac{5}{9}$	M1

