Practice worksheet | Probability

Conditional versus unconditional probabilities

Name: _____ Date: _____

6 questions | 14 marks

1. Find $P(\text{cycle})$ from the travel table. [2 marks]

Invented survey of 60 students; every student is in exactly one travel category.

Travel	Girl	Boy	Total
Cycle	12	8	20
Walk	18	22	40
Total	30	30	60

2. Find $P(\text{boy and cycle})$. [2 marks]

Invented survey of 60 students; every student is in exactly one travel category.

Travel	Girl	Boy	Total
Cycle	12	8	20
Walk	18	22	40
Total	30	30	60

3. Find $P(\text{boy} \mid \text{cycle})$. [2 marks]

Invented survey of 60 students; every student is in exactly one travel category.

Travel	Girl	Boy	Total
Cycle	12	8	20
Walk	18	22	40
Total	30	30	60

4. Are being a boy and cycling independent in this table? [3 marks]

Invented survey of 60 students; every student is in exactly one travel category.

Travel	Girl	Boy	Total
Cycle	12	8	20
Walk	18	22	40
Total	30	30	60

5. $P(A) = 0.25$ and $P(A \mid B) = 0.25$, with $P(B) > 0$. What can you conclude? [2 marks]

6. A survey links extra tutoring with higher scores. Explain why a conditional proportion alone does not prove tutoring caused the increase. [3 marks]