GEOMETRY · CLASSWORK · SPECIAL ED

Use the Test for Independence

SCORE / 25

01 Part A · Practice

A and *B* are independent when $P(A \mid B) = P(A)$: knowing *B* does not change the probability of *A*.

EXAMPLE

Of 50 students, 20 play chess; 8 of the 20 chess players are in Grade 9, and 20 of all 50 students are in Grade 9. Independent?

1. $P(\text{Grade 9} \mid \text{chess}) = \frac{8}{20} = 0.4$.
2. $P(\text{Grade 9}) = \frac{20}{50} = 0.4$.
3. They are equal, so the events are independent.

WORDS TO KNOW

independent	P(A | B) = P(A)
conditional probability	the probability of A when B is known to happen
rate	a part divided by its own group total

1 ●○○ $P(B) = 0.7$ and $P(B \mid A) = 0.7$. Are *A* and *B* independent? Explain.

HINT Compare P(B given A) with P(B).

2 ●○○ One card is drawn. *A*: it is a 10. *B*: it is a spade. Use $P(A \mid B)$ to decide if *A* and *B* are independent.

HINT Find P(A) with all 52 cards, then P(A | B) using only the cards in B.

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Preview - the full worksheet and its answer key are at primeworksheet.com