

Probability - Secondary 4 and 5

Name: _____

Date: _____

Concepts

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1. A carnival stall runs the following operation. A spinner with four congruent sectors marked 2, 3, 5 and 7 is spun once, then a balanced four-sided die numbered 1 to 4 is rolled once. The result recorded is the ordered pair (spinner number, die number).

- Explain why this operation is a random experiment.
- Give the sample space Ω and its cardinality.
- The stall pays a prize when the *product* of the two numbers is even. Find the probability of winning a prize.
- Find the probability that the product exceeds 20.

2. A city is studying a new bike lane. Consider the experiment “choose one cyclist at random on a given weekday and observe whether that cyclist uses the new lane”.

Write three short statements about this situation, one that would give a **theoretical** probability, one an **experimental** probability and one a **subjective** probability. Explain in one line what makes each statement belong to its type.

3. A survey of 500 households asked about two composting programs. It found that 320 households own a compost bin, 250 own a rain barrel, and 90 own neither.

- a) Describe, in words, the event complementary to “the household owns neither”.
- b) Give the probability of that complementary event.
- c) How many households own both? Give the probability.
- d) Find the probability that a household chosen at random owns a compost bin but no rain barrel.

Want the harder problems and the worked solutions?

The *Challenge Problems* set and the *Answer Keys* for Probability - Secondary 4 and 5 — with the reasoning written out in full — are available at tutorinmontreal.ca.