

Note: You must show the details of the work to receive credit. Simply providing the final answer [from a calculator] will get **ZERO** points.

Formulae:

(i) $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

(ii) If $P(B) > 0$, then $P(A|B) = \frac{P(A \text{ and } B)}{P(B)}$.

A survey of middle school students asked: “What is your favorite winter sport?” The proportion of the students who chose each sport by their grade levels are given below:¹

Favorite Winter Sport			
	Snowboarding	Skiing	Ice Skating
Grade 6	0.13	0.08	0.16
Grade 7	0.15	0.15	0.40
Grade 8	0.12	0.07	0.10

A student from this survey is selected at random. [Each of the following problems is worth 3 points, and do not forget the problems on the back!]

1. What is the probability of selecting a student whose favorite sport is skiing?

2. What is the probability of selecting a student who is in 7th grade or whose favorite winter sport is skiing?

¹Based on question from Oswego City School District Regents Exam Prep Center (regentsprep.org/regents/math/algebra)

3. If the student selected is a 7th grade student, what is the probability that the student prefers ice-skating?

4. If the student selected prefers snowboarding, what is the probability that the student is a 6th grade student?

5. If the student selected is an 8th grade student, what is the probability that the student prefers skiing or ice-skating?