

## School Ski Trip

Each winter, the PTA at Kailynn’s school organizes a ski trip. Students pay an upfront cost, which includes a 2-night stay, transportation, meals, and 6 hours of skiing each day.

### ANNUAL SKI TRIP

- 2-night stay
- 6 hours of skiing each day
- Transportation and meals included

- This year, the PTA has 7 chaperones going on the trip, and each chaperone will supervise exactly 15 students.
- The PTA collected \$25,515 from the students to pay for the trip.
- The chaperones pay for their own hotel rooms, but the PTA pays for hotel rooms for the students. Each room can hold 4 students.
- Students and chaperones take school buses from the school to the ski resort. Each bus seats 48 people.
- Students can choose to go snow tubing during the trip, but this is not included in the cost of the trip. The cost for tubing is \$23 for the lift ticket plus the cost of renting specialty snow boots. The total cost of snow tubing is \$29.

Use this information to write and solve equations to determine the number of students going on the trip, the cost per student, the number of hotel rooms needed for the students, the number of buses needed, and the cost to rent snow boots for tubing.

### Your work should include:

- Defined variables (2 points)
- Equations to represent each situation (3 points)
- An explanation of how each equation represents the situation (3 points)
- Solved equations (3 points)
- Statements interpreting solutions (2 points)

## Rubric: 13 Total Points

	<b>0 points</b>	<b>1 point</b>	<b>2 points</b>	<b>3 points</b>
<b>Variables</b>	No variables are defined.	Variables are defined for some scenarios and equations.	Variables are defined for all scenarios and equations.	N/A
<b>Equations</b>	No equations are given.	Equations are given for 1 or 2 scenarios.	Equations are given for 3–5 scenarios but contain errors.	Equations are given to accurately represent all 5 scenarios.
<b>Explanation</b>	No explanation is given.	Explanation is given for 1 or 2 equations.	Explanation is given for 3 or 4 equations but may not be logical.	Logical, detailed explanations are given for all 5 equations.
<b>Solutions</b>	No solutions are given.	Solutions are given for 1 or 2 equations.	Solutions are given for 3–5 equations but contain errors.	Accurate solutions are given for all 5 equations.
<b>Interpretation of Solutions</b>	No interpretation is given.	An interpretation is given, but it is flawed.	A logical interpretation of solutions is given.	N/A

## Teacher Notes

**Task Name:** School Ski Trip

**Overview:** Students are given information about number of chaperones, total cost, number of students per hotel room, number of passengers per bus, and tubing cost for a school ski trip. They are asked to determine the number of students, amount paid per student, number of hotel rooms, number of buses, and cost of renting specialty snow boots. To answer each question, students must define variables and write and solve equations. They also need to interpret the results in context.

## Sample Answer

Let  $s$  represent the total number of students going on the ski trip. Since each chaperone supervises 15 students, the total number of students are in groups of 15. Multiply the number of students in each group by the number of chaperones.

$$s = 7(15)$$

$$s = 105$$

There are 105 students going on the ski trip.

Let  $c$  represent the cost per student. There are 105 students, so multiply 105 by  $c$  to get the total amount, \$25,515.

$$105c = \$25,515$$

$$c = \frac{\$25,515}{105}$$

$$c = \$243$$

The PTA collects \$243 from each student to pay for the trip.

© Carnegie Learning, Inc. Let  $r$  represent the number of hotel rooms the PTA needs to reserve. Since 4 students fit to a room, multiply the number of rooms by 4 to equal the number of students.

$$4r = 105$$

$$r = \frac{105}{4}$$

$$r = 26 \text{ R } 1$$

If the PTA reserves 26 rooms, that will hold 104 students, but then there would be a student without a room, so the PTA needs to reserve 27 rooms.

## Sample Answer Continued

Let  $b$  represent the number of buses. The number of buses times the 48, the number of passengers each bus holds, should equal the number of students plus chaperones.

$$48b = 105 + 7$$

$$48b = 112$$

$$b = \frac{112}{48}$$

$$b = 2 \text{ R } 16$$

If there were 2 buses, 16 passengers wouldn't have a ride, so 3 buses are needed.

Let  $b$  represent the cost of snow boots. The total cost of tubing equals the cost of tubing plus the cost of renting snow boots.

$$23 + b = 29$$

$$23 + b - 23 = 29 - 23$$

$$b = 6$$

The cost of renting snow boots is \$6.