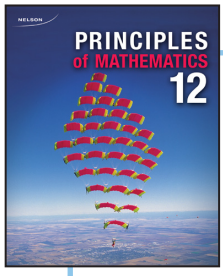


- If you have any difficulty with these solutions, please contact your teacher before continuing.

Page 25, *Your Turn*

Yes, Petra is correct. The Principle of Inclusion and Exclusion states $n(S \cup H) = n(S) + n(H) - n(S \cap H)$. However, in this example (Page 24, *Example 1*), S and H are disjoint sets. Therefore, $n(S \cap H) = 0$.

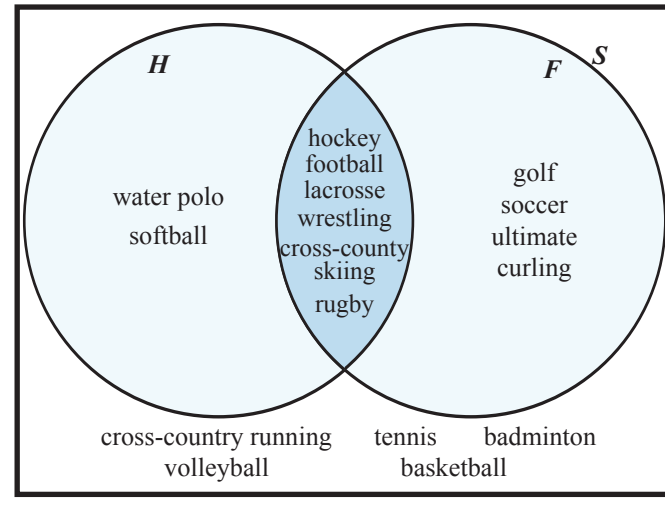
$n(S \cup H) = n(S) + n(H) - n(S \cap H)$
$n(S \cup H) = n(S) + n(H) - 0$
$n(S \cup H) = n(S) + n(H)$

Page 27, *Your Turn*

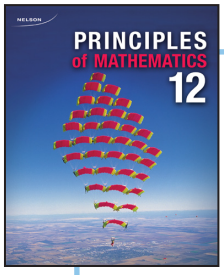
Answers will vary for this solution because students may have various interpretations of *special* footwear. Contact your teacher to confirm that your answer is correct.

Possible solution:

S = {all sports}
H = {sports requiring special headgear}
F = {sports requiring special footwear}



- How many sports do not require special headgear or footwear? (basketball, cross-country running, tennis, badminton, volleyball)
- How many sports require both special headgear and footwear? (football, hockey, skiing, lacrosse, wrestling, rugby)
- How many sports require special footwear only? (golf, soccer, ultimate, curling)
- How many sports require special headgear only? (water polo, softball)



- If you have any difficulty with these solutions, please contact your teacher before continuing.

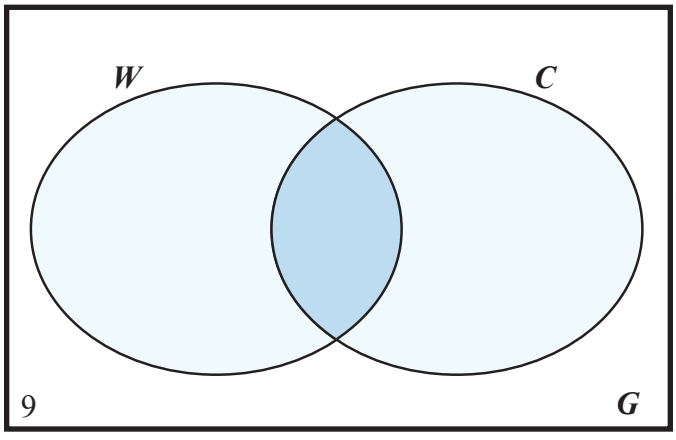
Page 28, *Your Turn*

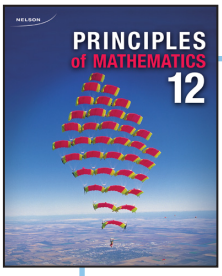
50 – 9 = 41 people train three times a week.

Because 27 of these people do cardio training, 41 – 27 = 14 do only weight training three times a week.

Because 16 do both cardio and weight training, 14 + 16 = 30 do weight training three times a week.

The Venn diagram shows the number of elements in each region:



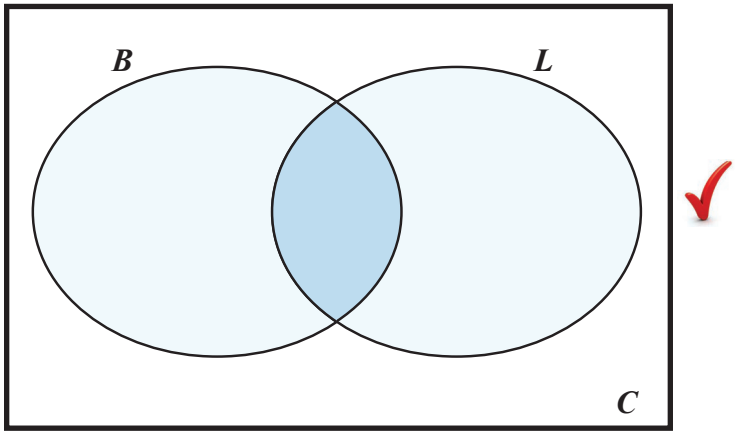


- If you have any difficulty with these solutions, please contact your teacher before continuing.

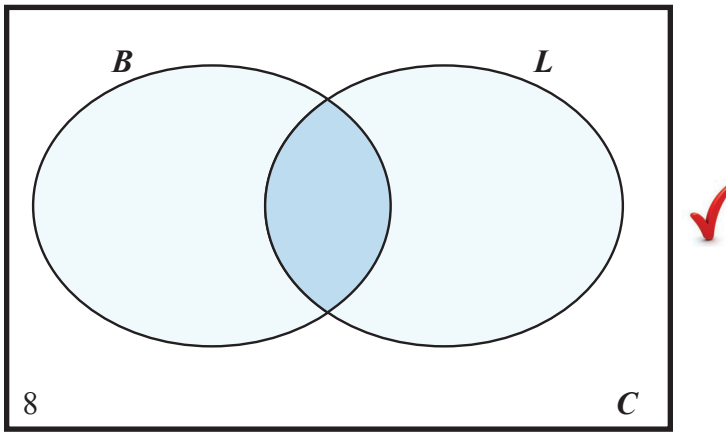
Page 30, *Your Turn*

Susan forgot to subtract the students in the intersection of the two sets when she determined the number of people in only set *B* or only set *L*.

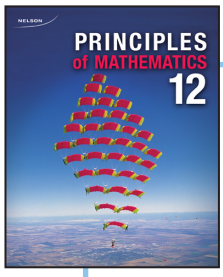
Susan's diagram (Venn shows number of elements in each region):



Correct diagram (Venn shows number of elements in each region):

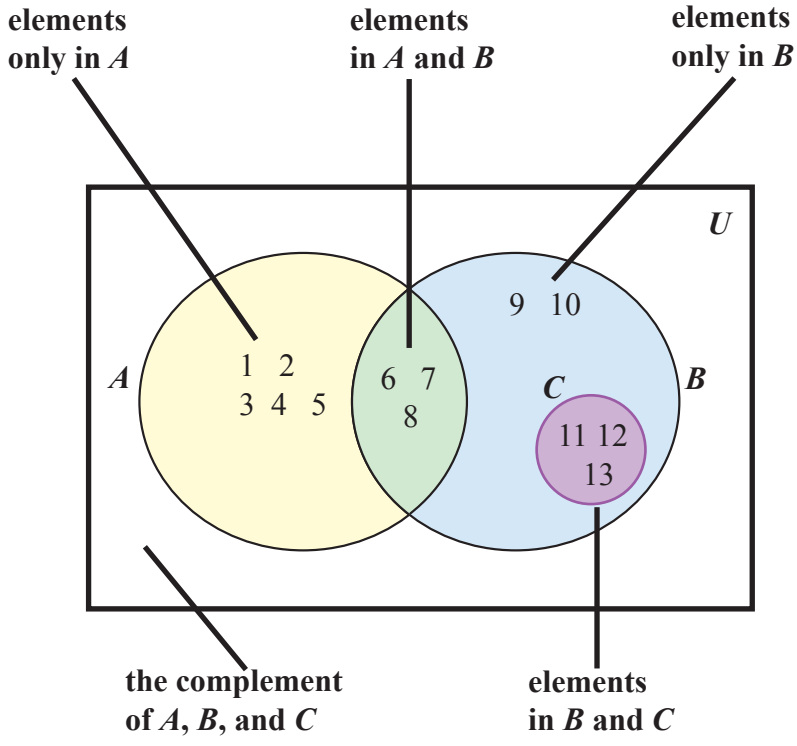


There are 34 – 10 – 4 – 12 = 8 students in her class who do neither.



- If you have any difficulty with these solutions, please contact your teacher before continuing.

1. a. Yes, these sets are possible for the Venn diagram on page 36. A and B intersect. C is a subset of B, but also C and A are disjoint. The elements are shown in the Venn diagram below.



b. These sets are not possible for the Venn diagram on page 36. A and B intersect as shown in the diagram because they both contain the elements *yellow*, *pink,* and *orange*. Also, C is a subset of B because all the elements of C are also elements of B. However, C also intersects with A because they both contain the element *yellow*. In the given Venn diagram, A and C are disjoint. Therefore, the sets A, B, and C given in the question are not possible sets to match the Venn diagram.