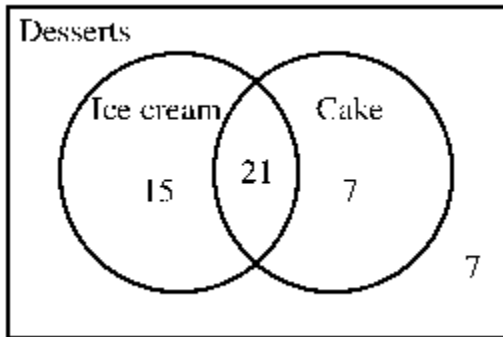


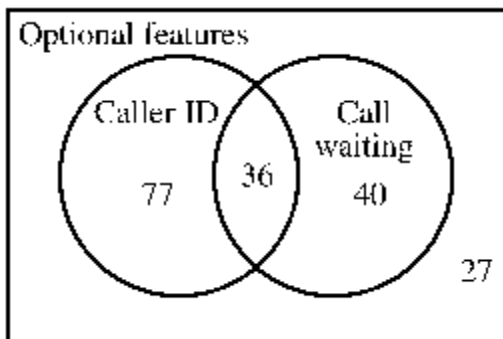
Solve the problem.

- 1) The following Venn diagram describes the desserts people ordered at a party. Use it to determine how many people ordered ice cream but not cake. 1) _____



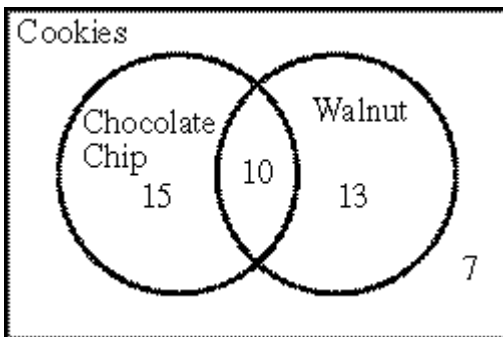
- A) 15 B) 36 C) 21 D) 7

- 2) The following Venn diagram describes the optional features ordered by new telephone customers in a certain region. Use it to determine how many customers did not order caller ID. 2) _____



- A) 76 B) 67 C) 77 D) 103

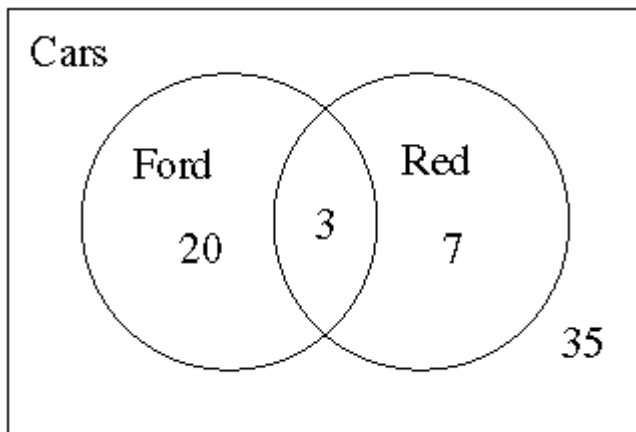
- 3) The following Venn diagram describes the types of cookies in a bakery. Use it to determine how many cookies have neither chocolate chips nor walnuts. 3) _____



- A) 10 B) 17 C) 3 D) 7

- 4) The following Venn diagram describes the cars on a used car lot. Use it to determine how many cars on the lot are not red.

4) _____



A) 55

B) 38

C) 58

D) 35

Draw a Venn diagram for the given sets. In words, explain why you drew one set as a subset of the other, disjoint sets, or overlapping sets.

- 5) athletes and high school students

- 6) even numbers and odd numbers

- 7) beverages and soft drinks

A categorical proposition is given. If it is not already in standard form, rephrase it. State the subject and predicate sets, and draw a Venn diagram for the proposition. Label all regions of the diagram clearly.

8) Some singers are not children.

9) No positive numbers are negative numbers.

10) Movies are entertaining.

Draw a Venn diagram to represent the given information.

11) There are 12 girls and 15 boys in a kindergarten class. 8 of the girls and 10 of the boys are right handed. 11) _____

A set of propositions is listed. Draw a Venn diagram that represents all the information in the propositions and use it (and no other assumptions) to answer the question. Explain your reasoning.

- 12) No dogs are cats. No gerbils are cats. All dogs have fleas. Some cats are thirsty. No thirsty creatures have fleas. 12) _____

Question: Could a gerbil be a dog?

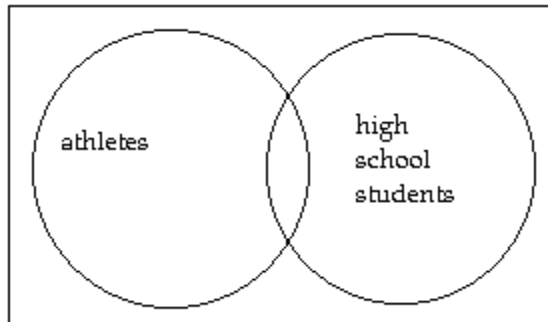
Draw a Venn diagram with three overlapping circles for the three given sets. Label the contents of every region. If a region has no members, state that fact clearly.

- 13) truck drivers, employed, unemployed 13) _____

Answer Key

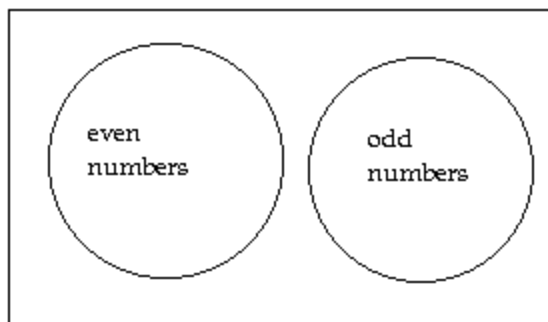
Testname: CM 2013 FINAL EXAM REVIEW #4 VENN DIAGRAMS

- 1) A
- 2) B
- 3) D
- 4) A
- 5)



The sets are overlapping. It is possible for a person to be both an athlete and a high school student, but not all athletes are high school students and not all high school students are athletes.

6)



The set "even numbers" is disjoint from the set "odd numbers" because the two sets have no members in common. An even number cannot be odd, and an odd number cannot be even.

7)

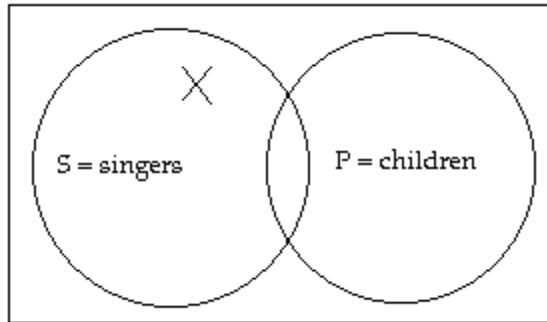


The set "soft drinks" is a subset of the set "beverages." All soft drinks are beverages, but some beverages (e.g., water) are not soft drinks.

Answer Key

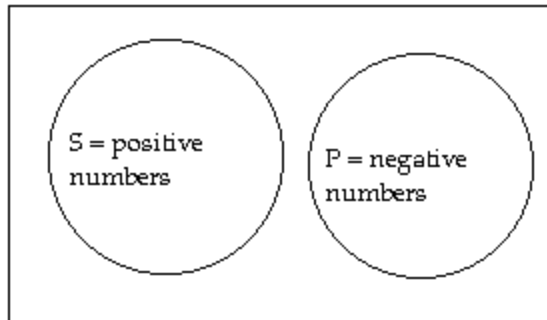
Testname: CM 2013 FINAL EXAM REVIEW #4 VENN DIAGRAMS

- 8) The subject set is "singers" and the predicate set is "children."

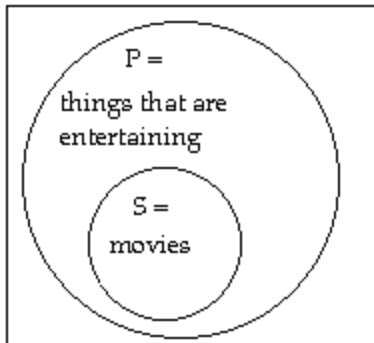


The X indicates that the non-overlapping region of the "singers" circle has at least one member. No claim is made about whether other regions also have members.

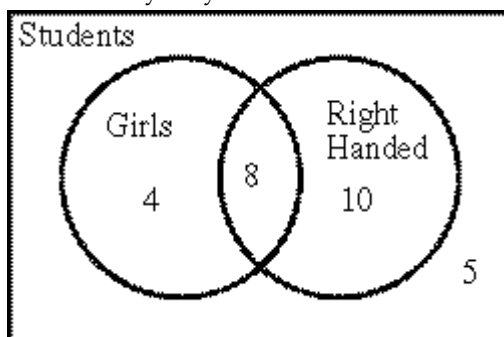
- 9) The subject set is "positive numbers" and the predicate set is "negative numbers."



- 10) In standard form: All movies are things that are entertaining.
The subject set is "movies" and the predicate set is "things that are entertaining."



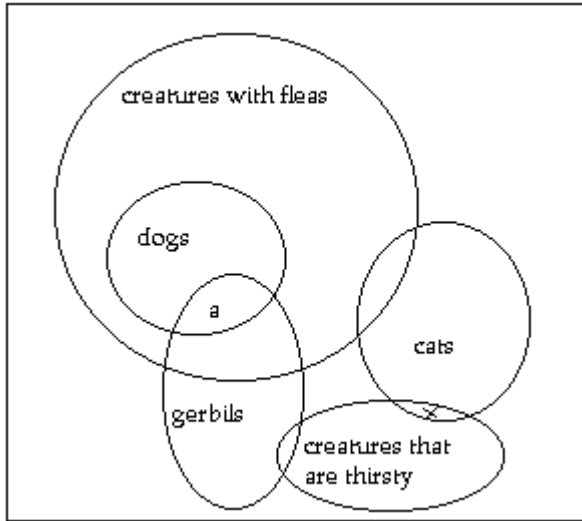
- 11) Answers may vary. Possible answer:



Answer Key

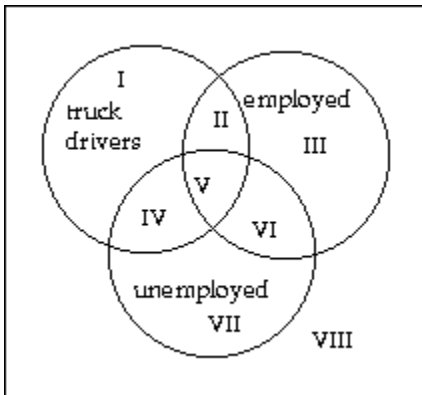
Testname: CM 2013 FINAL EXAM REVIEW #4 VENN DIAGRAMS

12) Answers may vary. One possibility:



Yes, a gerbil could be a dog. We know from the first proposition that the set "dogs" is disjoint from the set "cats," and we know from the second proposition that the set "gerbils" is disjoint from the set "cats." However, we do not know the relationship between the sets "dogs" and "gerbils." It is possible that the two sets are not disjoint; if so, they will overlap in region a. A gerbil who is a dog would necessarily have fleas, since all dogs have fleas. Such a gerbil would not be thirsty, since no thirsty creatures have fleas.

13)



I* = truck drivers who are neither employed nor unemployed

II = employed truck drivers

III = non-truck drivers who are employed

IV = unemployed truck drivers

V* = truck drivers who are both employed and unemployed

VI* = non-truck drivers who are both employed and unemployed

VII = non-truck drivers who are unemployed

VIII* = non-truck drivers who are neither employed nor unemployed

*This region has no members.