

Multiple Choice. Write the correct answer in the space provided at the end of this section.

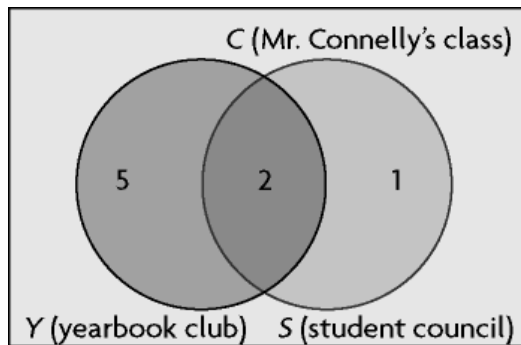
1. What is the universal set?

- (A) a set with an infinite number of elements
- (B) a set of all the elements under consideration for a particular context
- (C) a set with a countable number of elements
- (D) a set that contains every possible element

2. What is the meaning of mutually exclusive in set theory?

- (A) two or more sets having no elements in common
- (B) two or more sets that do not match
- (C) sets that are in different universal sets
- (D) sets that contain no elements

3. There are 28 students in Mr. Connelly's Grade 12 mathematics class. The number of students in the yearbook club and the number of students on student council are shown in the Venn diagram. Use the diagram to answer the following questions.



How many students are in at least one of the yearbook club or on student council?

- (A) 2
- (B) 5
- (C) 8
- (D) 7

$$5 + 2 + 1 = 8$$

4. How many of the 28 students in Mr. Connelly's Grade 12 mathematics class (in #3) are not on the student council and not in the yearbook club?

- (A) 27
(B) 26
(C) 23
(D) 20

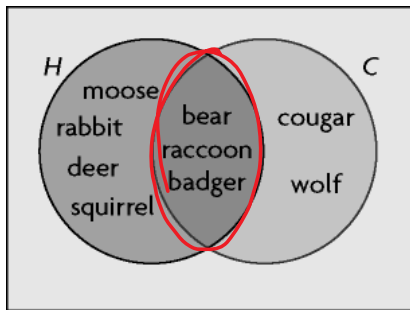
$$28 - 8 = 20$$

5. Given the following situation:
- the universal set $U = \{\text{positive integers less than } 20\}$
 - $X = \{4, 5, 6, 7, 8\}$
 - $P = \{\text{prime numbers of } U\}$
 - $O = \{\text{odd numbers of } U\}$

Which set represents the odd, prime numbers of set U ?

- (A) $\{0, 3, 5, 7, 11, 13, 17, 19\}$
(B) $\{3, 5, 7, 11, 13, 17, 19\}$
(C) $\{2, 3, 5, 7, 11, 13, 17, 19\}$
(D) $\{1, 2, 3, 5, 7, 11, 13, 17, 19\}$

6. Consider the following Venn diagram of herbivores and carnivores:

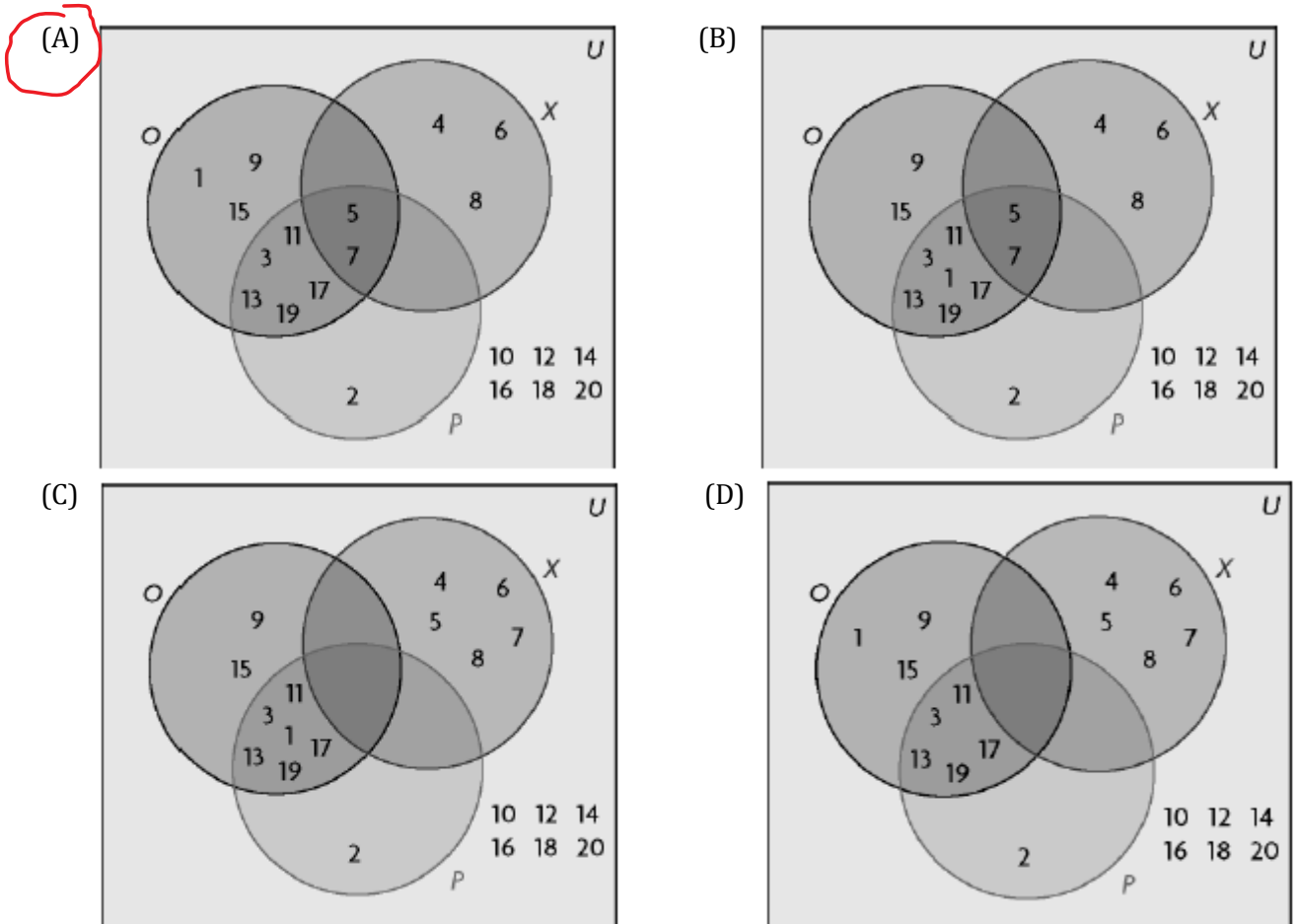


Determine $H \cap C$.

- (A) $\{\text{moose, rabbit, deer, squirrel}\}$
(B) $\{\text{bear, raccoon, badger}\}$
(C) $\{\text{cougar, wolf}\}$
(D) $\{\text{moose, rabbit, deer, squirrel, bear, raccoon, badger, cougar, wolf}\}$

7. Given the following situation:
- the universal set $U = \{\text{positive integers less than } 20\}$
 - $X = \{4, 5, 6, 7, 8\}$
 - $P = \{\text{prime numbers of } U\}$
 - $O = \{\text{odd numbers of } U\}$

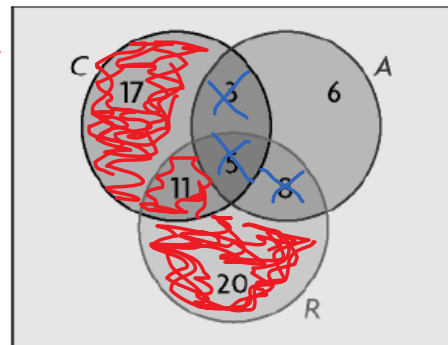
Which diagram represents the situation?



8. A summer camp offers canoeing, rock climbing, and archery. The following Venn diagram shows the types of activities the campers like. Use the diagram to determine $n((R \cup C) \setminus A)$.

- (A) 64
 (B) 48
 (C) 37
 (D) 59

$$17 + 11 + 20 = 48$$

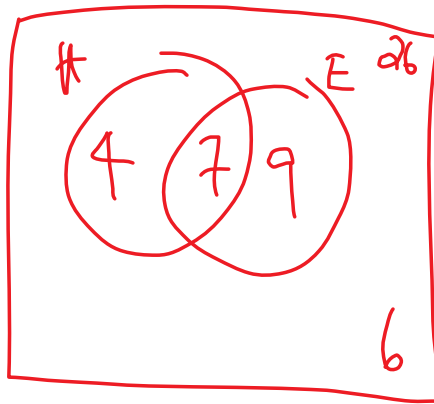


9. Which pair of sets represents disjoint sets?

- (A) N , the set of natural numbers, and I , the set of integers
- (B) T , the set of all triangles, and C , the set of all circles
- (C) N , the set of natural numbers, and P , the set of positive integers
- (D) R , the set of all rectangles, and S , the set of all squares

10. There are 26 students in a classroom. 11 students have blonde hair (H), 16 have brown eyes (E), 6 do not have blonde hair or brown eyes, and 13 have blonde hair or brown eyes, but not both. How many of these students have both blonde hair and brown eyes, $H \cap E$?

- (A) 1
- (B) 7
- (C) 13
- (D) 20



$$\begin{aligned} 26 - 6 &= 20 \\ 11 + 16 &= 27 \\ - 20 & \\ \hline &7 \end{aligned}$$