

Math 3201**Chapter 1 Review 1**

1. Use the following sets to answer each question below:

$$U = \{x / 1 \leq x \leq 13, x \in N\}$$

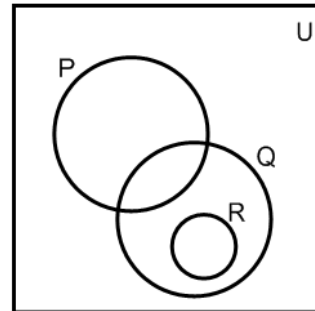
$$A = \{r / r = 3x, 1 \leq x \leq 4, x \in N\}$$

$$B = \{q / q = 4x, 1 \leq x \leq 3, x \in N\}$$

- A) List the elements of each set.
- B) Sketch the Venn diagram.
- C) Determine $n(A)$, $n(A \setminus B)$ and $n(A \cap B)'$

2. Indicate whether each statement is true or false for the sets below.

- A) $P \subset Q$
- B) $R \subset Q$
- C) P and R are disjoint sets.
- D) $n(R) + n(R') = n(U)$
- E) $P \cap Q$ is an empty set.
- F) $P \cap R$ is an empty set

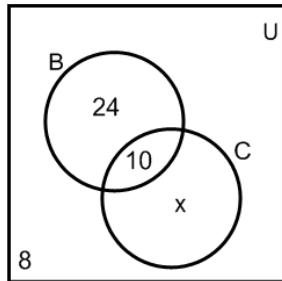


- 3. In a group of 50 students, 18 take Healthy Living, 26 take Phys. Ed, and 2 take both Healthy Living and Phys. Ed. How many students in the group do not take either course?
- 4. At the new coffee house in town, Tom surveyed 50 people. 35 ordered coffee. 25 ordered a pastry. 5 ordered something different. Determine the number of people who ordered coffee and a pastry.

5. Kelly surveyed 50 homes about their recycling habits.
- 24 people said they recycle beverage containers
 - 10 of the 24 said they also recycle cardboard
 - 8 people do not recycle

She wondered how many people recycle cardboard.

Find the ERROR in the following solution.



$$24 + 10 + x = 42$$

$$34 + x = 42$$

$$x = 8$$

$$n(C) = 8 + 10 = 18 \text{ (18 people recycle cardboard)}$$

Sketch the correct Venn diagram.

6. Use the information below

$$U = \{\text{whole numbers from 0 to 10 inclusive}\}$$

$$P = \{\text{odd numbers less than 7}\}$$

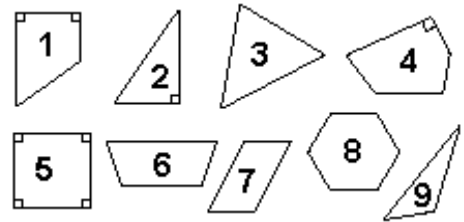
$$R = \{\text{numbers greater than 4}\}$$

- A) Represent the data with a Venn diagram.
- B) Determine $P \cap R$, R' and $(P \cup R)'$
- C) Determine $n(P \cup R)$.
- D) Determine $n(P \setminus R)$

7. The numbered shapes below are sorted into two sets, R and Q. Set R contains the shapes with one 90° angle and Set Q contains the shapes with 4 sides.

A) Sketch the Venn diagram

B) Determine $n(R)$, $n(R \cup Q)'$ and $n(R/Q)$



8. A guidance counselor is planning schedules for 30 students. Sixteen students say they want to take French, 16 want to take Spanish, and 11 want to take Latin. Five say they want to take both French and Latin, and of these, 3 wanted to take Spanish as well. Five want only Latin, and 8 want only Spanish. How many students want French only?

9. During the open volleyball practice on Saturday, Mr. Murrin allowed the boys to practice setting, hitting and blocking. There were 20 boys at practice, however 2 players sat out due to injuries.

8 players practiced setting, 12 players worked on hitting, 10 players were blocking
4 players spent time setting and hitting, 4 players blocked and set the ball and 3 players worked on all three skills.

A) Use an equation to determine the number of players who practiced hitting and blocking but did not spend any time setting.

B) Represent this data with a Venn diagram.