

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Determine whether the set is well defined or not well defined.

- 1) The set of five countries in Europe having the smallest population
- 2) The set of people who wear expensive perfume
- 3) The set of professional baseball players over the age of 39

Identify the set as finite or infinite.

- 4) The set of odd whole numbers less than 100
- 5) $\{x \mid x \text{ is a fraction between } 84 \text{ and } 85\}$

Express the set in roster form.

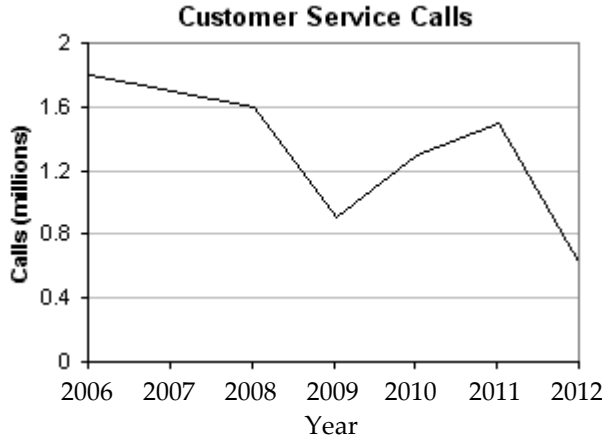
- 6) $\{x \mid x \text{ is a natural number multiple of } 5\}$
- 7) The set of the days of the week

Write the set in set-builder notation.

- 8) $\{2, 4, 6, 8\}$
- 9) The odd natural numbers less than 57

Solve the problem.

- 10) Use the following graph which shows the number of customer service calls to a major appliance manufacturer, in millions, for the years 2006–2012. Use the graph to represent the set in roster form.



The set of years in which the number of customer service calls exceeded 1 million.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Write a description of the set.

- 11) $E = \{x \mid x \in \mathbb{N} \text{ and } 1 < x \leq 19\}$
- A) E is the set of natural numbers greater than 19 and less than or equal to 1.
 - B) E is the set of natural numbers greater than or equal to 1 and less than 19.
 - C) E is the set of integers greater than 1 and less than or equal to 19.
 - D) E is the set of natural numbers greater than 1 and less than or equal to 19.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Tell whether the statement is true or false. If false, give the reason.

- 12) $5 \in \{10, 15, 20, 25, 30\}$

- 13) $\{6\} = \{x \mid x \text{ is an even counting number between 8 and 14}\}$

- 14) $13 \notin \{x \mid x \text{ is an even counting number}\}$

Determine whether the sets are equal, equivalent, both, or neither.

- 15) $\{63, 18, 100\}$ and $\{18, 100, 63\}$

Let $A = \{1, 3, 5, 7\}$

$B = \{5, 6, 7, 8\}$

$C = \{5, 8\}$

$D = \{2, 5, 8\}$

$U = \{1, 2, 3, 4, 5, 6, 7, 8\}$.

Determine whether the statement is true or false.

16) $C \subseteq D$

17) $A \neq \{7, 5, 3, 1\}$

18) $C \subset A$

19) $\{ \} \subset C$

Use $\subseteq$, $\not\subseteq$, $\subset$, or both $\subset$ and $\subseteq$ to make a true statement.

20) $\{6, 7, 8\}$ _____ $\{5, 6, 7, 8\}$

21) $\emptyset$ _____ $\{10, 11, 27, 37\}$

List all subsets or determine the number of subsets as requested.

22) Determine the number of subsets of $\{1, 2, 3, \dots, 6\}$

23) List all the subsets of $\{\text{wolf, cat, sheep}\}$.

Answer the question.

24) Anna goes to a frozen yogurt shop. She can choose from any of the following toppings: almonds, hot fudge, chocolate chips, blueberries, and cheesecake bits. How many different variations of yogurt and toppings can be made?

Determine whether the sets are equal, equivalent, both, or neither.

25) $\{\text{first, second, third}\}$ and $\{1, 2, 3\}$