

Probability and Set Theory

Practice and Problem Solving: A/B

For Problems 1–6, write each statement in set notation. Use the descriptions of the sets to the right to complete each statement.

1. the intersection of sets A and B

2. the complement of set A

3. the union of sets A and B _____

4. the complement of set B _____

5. the number of elements in set A _____

6. the number of elements in set B _____

7. Define set C so that C is a subset of set A . _____

8. Define set D so that D is a subset of set B . _____

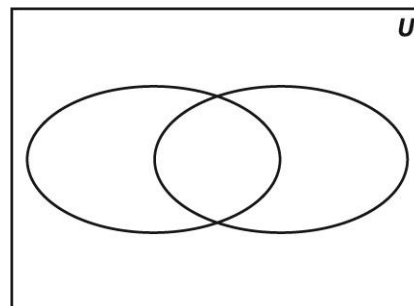
| | |
|-------|--|
| $A =$ | $\{21, 23, 25, 27, 29\}$ |
| $B =$ | $\{21, 24, 27, 30\}$ |
| $U =$ | $\{20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30\}$ |

For Problems 9 and 10, use the descriptions of the sets in the box above.

9. Create a Venn diagram to represent sets A , B , and U .

10. Describe the parts of the Venn diagram that correspond to 1–4 above.

- 1) _____
 2) _____
 3) _____
 4) _____



Refer to the descriptions of the sets above and the Venn diagram to find the probabilities in Problems 11–14.

11. Use set notation to write a fraction giving the probability that a number chosen from the universal set will be in set A . Fill in the numbers.

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12. What is the probability that a number in U is *not* in A ? _____

13. What is the probability that a number in U is in $A \cup B$?

14. What is the probability that a number in U is *not* in A or B ?
