

Worksheet 1AA

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Questions and Exercises

Problems 1 - 25. Let U be the well defined universe \mathbb{N}_9 .

Let $A = \{x|x < 4\}$ Let $B = \{x|\exists p \in \mathbb{N}_9 \ni x = 2 \cdot p\}$, $C = B^c$,
 $D = \{x| \exists p \in \mathbb{N}_9 \ni x = 3 \cdot p\}$, $E = \{1, 4, 9\}$, $F = \{x| \exists p \in \mathbb{N}_9 \ni x = 3 \cdot p + 1\}$,
 $G = \{3, 4, 5, 6\}$, and $H = \{1, 7\}$.

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| 1. Find $A \cap B$ | 2. Find $A \cup C$ | 3. Find $E \cap B$. |
| 4. Find $F - G$. | 5. Find $A \cup (B \cup D)$ | 6. Find $A \cup (B \cap D)$. |
| 7. Find $A \cap (B \cup D)$ | 8. Find $A \cap (B \cap D)$. | 9. Find $(D \cup B) - E$. |
| 10. Find $A \cap (B \cup D)$. | 11. Find $A \cap (B \cap D)$. | 12. Find $(D \cup B) - E$. |
| 13. Find $A \cap (B \cup D)$. | 14. Find $A \cap (B \cap D)$. | 15. Find $(D \cup B) - E$. |
| 16. Find $D \cup (B - E)$. | 17. Find $D \cup B - E$. | 18. Find $G \cap C \cap A$. |
| 19. Find $G \cup C \cup A$. | 20. Find $A \cap (B - C)$. | 21. Find $A \cap B - A \cap C$. |
| 22. Find $\mathcal{P}(H)$. | 23. Find $\mathcal{P}(G)$. | 24. Find $\emptyset \cup B$. |
| 25. Find $\emptyset \cap B$. | | |

Problems 26 - 58. Let U be the well defined universe \mathbb{R} .

Let $J = \{x|x < 4\}$, $K = \{x|x < 5 \vee x \geq 10\}$, $M = [5, 11]$, $P = K^c$,

$Q = \{x| \exists p \in \mathbb{N} \ni x = 2 \cdot p\}$, $R = \{x| \exists p \in \mathbb{Z} \ni x = 2 \cdot p\}$,

$S = \{1, 9\}$, $T = (1, 9]$, $W = [1, 9]$, $X = (1, 9)$, and $Y = \{x|4 \leq x < 9\}$.

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| 26. Find $J \cap K$ | 27. Find $J \cup M$ | 28. Find $X \cap K$. |
| 29. Find $Y - W$. | 30. Find $J \cup (K \cup P)$ | 31. Find $J \cup (K \cap P)$. |
| 32. Find $J \cap (K \cup P)$ | 33. Find $J \cap (K \cap P)$. | 34. Find $(P \cup K) - X$. |
| 35. Find $J \cap (K \cup P)$. | 36. Find $J \cap (K \cap P)$. | 37. Find $(P \cup K) - X$. |
| 38. Find $J \cap (K \cup P)$. | 39. Find $J \cap (K \cap P)$. | 40. Find $(P \cup K) - X$. |
| 41. Find $P \cup (K - X)$. | 42. Find $P \cup K - X$. | 43. Find $W \cap M \cap J$. |
| 44. Find $W \cup M \cup J$. | 45. Find $J \cap (K - M)$. | 46. Find $J \cap K - J \cap M$. |
| 47. Find $S \cap W \cap T \cap X$. | 48. Find $\emptyset \cup U$. | 49. Find $\emptyset \cap U$. |
| 50. Find $S \cap T$ | 51. Find $R - Q$. | 52. Find $Q - R$. |
| 53. Find $S \cap W$ | 54. Find $S - W$. | 55. Find $W - S$. |
| 56. Find $S \cap X$ | 57. Find $S - X$. | 58. Find $X - S$. |