## SETS

INTERSECTION AND UNION

| $\begin{aligned} & \mathbf{A 1} \\ & A=\{2,3,5,7,11\} \\ & B=\{3,5,7,9\} \end{aligned}$ <br> List $A \cup B$ | A2 <br> $A=\{$ factors of 100$\}$ <br> $B=\{$ multiples of 5$\}$ <br> List $A \cap B$ | A3 $\begin{aligned} & A=\{\mathrm{c}, \mathrm{~h}, \mathrm{i}, \mathrm{n}, \mathrm{a}\} \\ & B=\{\mathrm{i}, \mathrm{t}, \mathrm{a}, \mathrm{l}, \mathrm{y}\} \end{aligned}$ <br> List $A \cup B$ | A4 $\begin{aligned} & A=\{\mathrm{s}, \mathrm{u}, \mathrm{p}, \mathrm{e}, \mathrm{r}\} \\ & B=\{\mathrm{c}, \mathrm{o}, \mathrm{~m}, \mathrm{p}, \mathrm{u}, \mathrm{t}, \mathrm{e}, \mathrm{r}\} \end{aligned}$ <br> List $A \cap B$ |
| :---: | :---: | :---: | :---: |
| B1 $\begin{aligned} & A=\{1,3,6,10,15\} \\ & B=\{3,6,9,12\} \end{aligned}$ <br> Find $\mathrm{n}(A \cup B)$ | B2 $\begin{aligned} & S=\{\mathrm{s}, \mathrm{q}, \mathrm{u}, \mathrm{a}, \mathrm{r}, \mathrm{e}\} \\ & V=\{\mathrm{a}, \mathrm{e}, \mathrm{i}, \mathrm{o}, \mathrm{u}\} \end{aligned}$ <br> Find $\mathrm{n}(S \cap V)$ | B3 $\begin{aligned} \mathcal{E} & =\{1,2,3,4,5,6,7,8\} \\ A & =\{2,3,5\} \end{aligned}$ <br> Find $n\left(A^{\prime}\right)$ | B4 $\begin{aligned} & M=\{2,4,6,8,10\} \\ & N=\{1,3,5,7,9\} \end{aligned}$ <br> Find $\mathrm{n}(M \cap N)$ |
| $\begin{aligned} & \hline \mathbf{C 1} \\ & A=\{2,4,6,8,10\} \\ & B=\{1,3,5,7,9\} \end{aligned}$ <br> Explain why $A \cap B=\varnothing$ | C2 <br> $A=\{$ multiples of 5$\}$ <br> $D=\{$ prime numbers $\}$ <br> Is it true that $A \cap D=\varnothing$ ? | C3 $\begin{aligned} \mathcal{E}= & \{1,2,3,4,5,6,7,8,9,10\} \\ A= & \{\text { even numbers }\} \\ B= & \{\text { multiples of } 3\} \\ & x \in B \text { and } \quad x \notin A \end{aligned}$ <br> What are the possible values of $x$ ? | C4 $\begin{aligned} \mathcal{E}= & \{1,2,3,4,5,6,7,8,9\} \\ A= & \{1,3,5,7\} \\ B= & \{2,4,6,8\} \\ & x \in \mathcal{E} \text { and } x \notin A \cup B \end{aligned}$ <br> What is the value of $x$ ? |
| D1 <br> $\mathcal{E}=\{$ even numbers $\}$ <br> $A=\{2,4,6,8,10\}$ <br> $B$ is such that $A \cap B=\{4,8\}$ and $\mathrm{n}(B)=3$. <br> List a possible set $B$. | D2 $\begin{aligned} & \mathcal{E}=\{1,2,3,4,5,6,7\} \\ & A=\{2,3,4,5\} \end{aligned}$ <br> $C$ is such that $A \cap C=\{4,5\}$ and $\mathrm{n}(C)=4$. <br> List a possible set $C$. | D3 $\begin{aligned} & \mathcal{E}=\{2,4,6,8,10,12,14\} \\ & A=\{2,6,8,12\} \end{aligned}$ <br> $C$ is such that $A \cap C=\varnothing$ and $\mathrm{n}(C)=3$. <br> List set $C$. | D4 $\begin{aligned} & A=\{3,4,5\} \\ & A \cup B=\{1,2,3,4,5\} \end{aligned}$ <br> $B$ has as few members as possible. List set $B$. |

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| A1 | A2 | A3 | A4 |
| :---: | :---: | :---: | :---: |
| $A=\{2,3,5,7,11\}$ | $A=\{$ factors of 100$\}$ | $A=\{\mathrm{c}, \mathrm{h}, \mathrm{i}, \mathrm{n}, \mathrm{a}\}$ | $A=\{\mathrm{s}, \mathrm{u}, \mathrm{p}, \mathrm{e}, \mathrm{r}\}$ |
| $B=\{3,5,7,9\}$ | $B=$ \{multiples of 5\} | $B=\{\mathrm{i}, \mathrm{t}, \mathrm{a}, \mathrm{l}, \mathrm{y}\}$ | $B=\{\mathrm{c}, \mathrm{o}, \mathrm{m}, \mathrm{p}, \mathrm{u}, \mathrm{t}, \mathrm{e}, \mathrm{r}\}$ |
| List $A \cup B \quad\{2,3,5,7,11,9\}$ | List $A \cap B \quad\{5,10,20,50,100\}$ | List $A \cup B \quad\{\mathrm{c}, \mathrm{h}, \mathrm{i}, \mathrm{n}, \mathrm{a}, \mathrm{t}, \mathrm{l}, \mathrm{y}\}$ | List $A \cap B \quad\{\mathrm{u}, \mathrm{p}, \mathrm{e}, \mathrm{r}\}$ |
| $\begin{aligned} & \text { B1 } A \cup B=\{1,3,6,10,15,9,12\} \\ & A=\{1,3,6,10,15\} \\ & B=\{3,6,9,12\} \end{aligned}$ | $\begin{aligned} & \text { B2 } S \cap V=\{u, a, \mathrm{e}\} \\ & S=\{\mathrm{s}, \mathrm{q}, \mathrm{u}, \mathrm{a}, \mathrm{r}, \mathrm{e}\} \\ & V=\{\mathrm{a}, \mathrm{e}, \mathrm{i}, \mathrm{o}, \mathrm{u}\} \end{aligned}$ | $\begin{aligned} & \text { B3 } \quad A^{\prime}=\{1,4,6,7,8\} \\ & \mathcal{E}=\{1,2,3,4,5,6,7,8\} \\ & A=\{2,3,5\} \end{aligned}$ | $\begin{aligned} & \text { B4 } M \cap N=\varnothing \\ & M=\{2,4,6,8,10\} \\ & N=\{1,3,5,7,9\} \end{aligned}$ |
| Find $\mathrm{n}(A \cup B) \quad=7$ | Find $\mathrm{n}(S \cap V)=3$ | Find $\mathrm{n}\left(A^{\prime}\right)=5$ | Find $\mathrm{n}(M \cap N)=0$ |
| C1 | C2 | C3 $\quad x=3$ or 9 | C4 $\quad x=9$ |
| $A=\{2,4,6,8,10\}$ | $A=\{\text { multiples of } 5\}$ | $\mathcal{E}=\{1,2,3,4,5,6,7,8,9,10\}$ | $\mathcal{E}=\{1,2,3,4,5,6,7,8,9\}$ |
| $B=\{1,3,5,7,9\}$ | $D=\{\text { prime numbers }\}$ | $A=$ \{even numbers $\}$ | $A=\{1,3,5,7\}$ |
| Explain why $A \cap B=\varnothing$ | Is it true that $A \cap D=\varnothing$ ? | $B=\{\text { multiples of } 3\}$ | $B=\{2,4,6,8\}$ |
| There are NOT ANY elements IN BOTH set $A$ and set $B$ | It's FALSE <br> - number ' 5 ' is in both sets | $x \in B \text { and } x \notin A$ <br> What are the possible values of $x$ ? | $x \in \mathcal{E} \text { and } \quad x \notin A \cup B$ <br> What is the value of $x$ ? |
| D1 $B=\{4,8$, any-even-number- | D2 $C=\{4,5,1,6\}$ | D3 $C=\{4,10,14\}$ | D4 $B=\{1,2\}$ |
| $\mathcal{E}=\{$ even numbers $\}$ bigger-then-10 $\}$ | $\mathcal{E}=\{1,2,3,4,5,6,7\} \quad\{4,5,1,7\}$ | $\mathcal{E}=\{2,4,6,8,10,12,14\}$ | $A=\{3,4,5\}$ |
| $A=\{2,4,6,8,10\}$ | $A=\{2,3,4,5\} \quad \text { or }\{4,5,6,7\}$ | $A=\{2,6,8,12\}$ | $A \cup B=\{1,2,3,4,5\}$ |
| $B$ is such that $A \cap B=\{4,8\}$ and $\mathrm{n}(B)=3$. | $C$ is such that $A \cap C=\{4,5\}$ and $\mathrm{n}(C)=4$. | $C$ is such that $A \cap C=\varnothing$ and $\mathrm{n}(C)=3$. | $B$ has as few members as possible. |
| List a possible set $B$. | List a possible set $C$. | List set $C$. | List set $B$. |

