

## Graphing Sets and Performing Set Operations on Number Lines

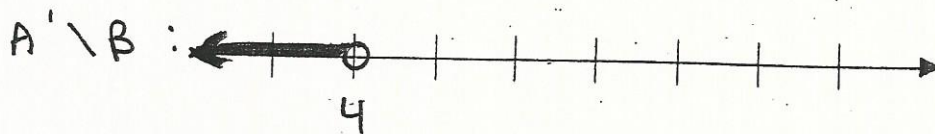
e.g. Given the intervals:

$$A = \{x \in \mathbb{R} \mid x \geq 6\}$$

$$B = \{x \in \mathbb{R} \mid 4 \leq x < 8\}$$

Perform the following set operations:  $A' \setminus B$

Graph the detailed solution below.



Give your answer in interval form:

$$-\infty, 4 [$$

Give your answer in set-builder notation:

$$\{x \in \mathbb{R} \mid x < 4\}$$

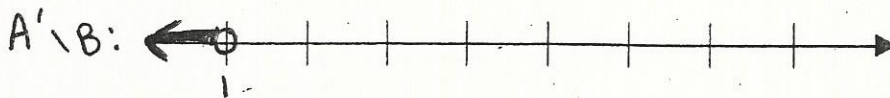
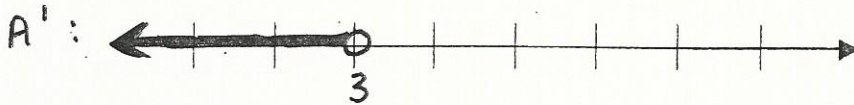
You try:

1.  $A = \{x \in \mathbb{R} \mid x \geq 3\}$

$$B = \{x \in \mathbb{R} \mid 1 \leq x < 7\}$$

Perform the following set operations:  $A' \setminus B$

Graph the detailed solution below.



Give your answer in interval form:  $-\infty, 1[$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid x < 1\}$

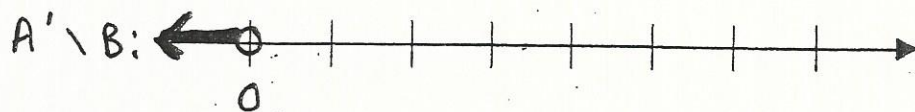
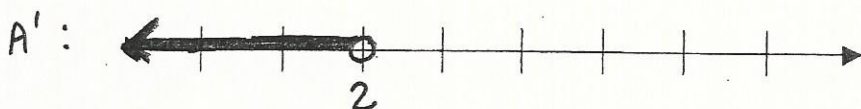
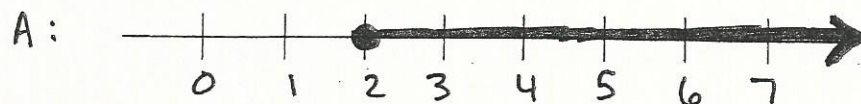
You try:

2.  $A = \{x \in \mathbb{R} \mid x \geq 2\}$

$$B = \{x \in \mathbb{R} \mid 0 \leq x < 4\}$$

Perform the following set operations:  $A' \setminus B$

Graph the detailed solution below.



Give your answer in interval form:  $-\infty, 0[$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid x < 0\}$

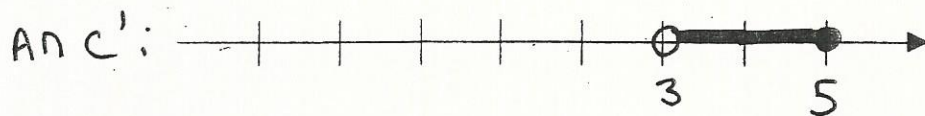
You try:

3.  $A = \{x \in \mathbb{R} \mid -1 < x \leq 5\}$

$$C = \{x \in \mathbb{R} \mid x \leq 3\}$$

Perform the following set operations:  $A \cap C'$

Graph the detailed solution below.



Give your answer in interval form:            $]3, 5]$           

Give your answer in set-builder notation:            $\{x \in \mathbb{R} \mid 3 < x \leq 5\}$

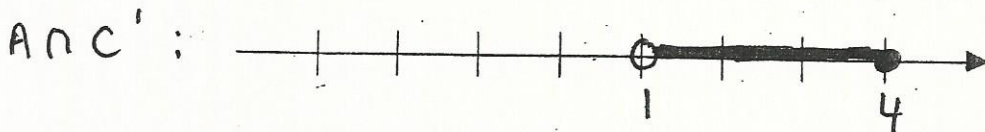
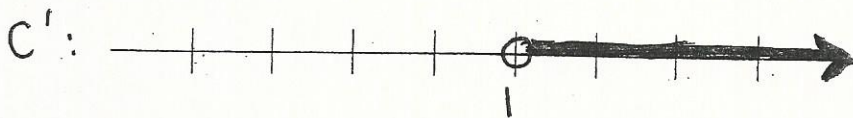
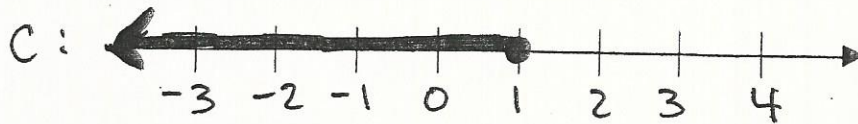
You try:

4.  $A = \{x \in \mathbb{R} \mid -3 < x \leq 4\}$

$$C = \{x \in \mathbb{R} \mid x \leq 1\}$$

Perform the following set operations:  $A \cap C'$

Graph the detailed solution below.



Give your answer in interval form:            $]1, 4]$           

Give your answer in set-builder notation:            $\{x \in \mathbb{R} \mid 1 < x \leq 4\}$



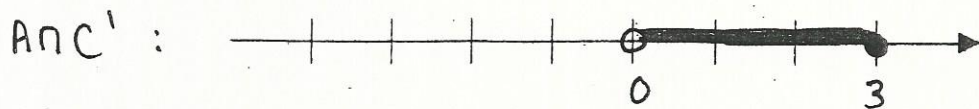
You try:

5.  $A = \{x \in \mathbb{R} \mid -4 < x \leq 3\}$

$$C = \{x \in \mathbb{R} \mid x \leq 0\}$$

Perform the following set operations:  $A \cap C'$

Graph the detailed solution below.



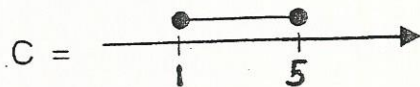
Give your answer in interval form:  $]0, 3]$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid 0 < x \leq 3\}$

e.g.

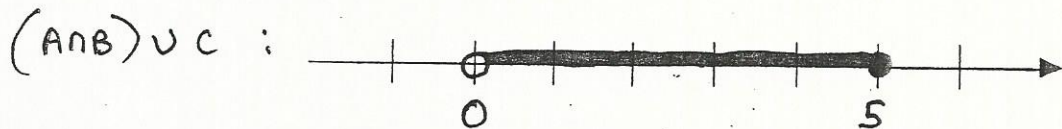
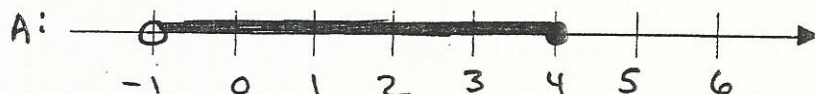
$$A = ]-1, 4]$$

$$B = ]0, 3]$$



$$(A \cap B) \cup C$$

Graph the detailed solution below.



Give your answer in interval form:            $]0, 5]$           

Give your answer in set-builder notation:            $\{x \in \mathbb{R} \mid 0 < x \leq 5\}$

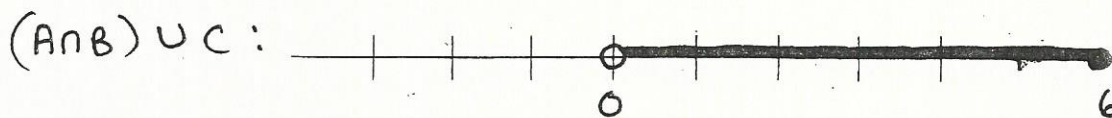
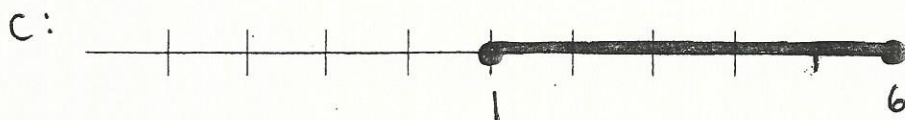
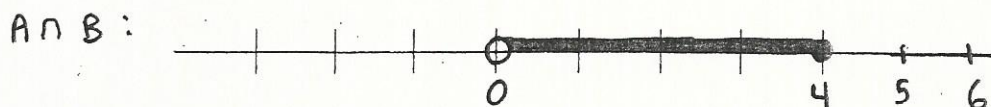
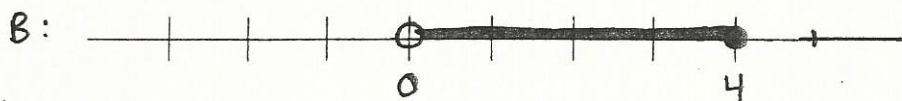
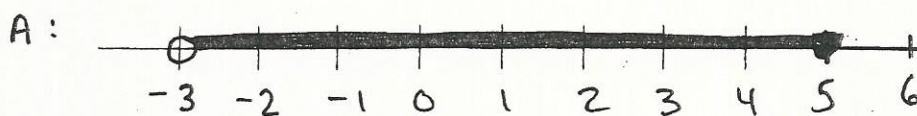
You try:

1. Given the intervals:  $A = ]-3, 5]$   $B = ]0, 4]$  and



$$(A \cap B) \cup C$$

Graph the detailed solution below.



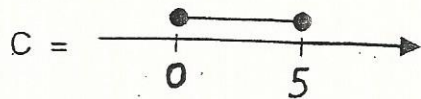
Give your answer in interval form:  $]0, 6]$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid 0 < x \leq 6\}$



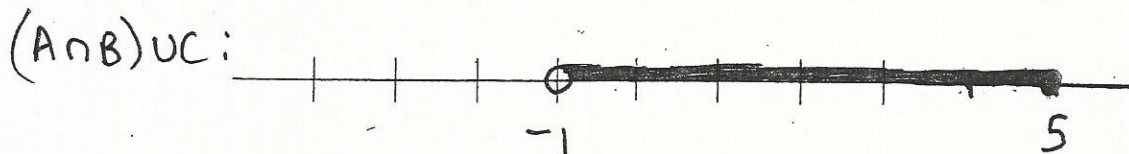
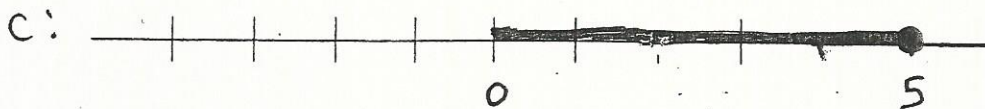
You try:

2. Given the intervals:  $A = ]-4, 2]$   $B = ]-1, 1]$  and



$$(A \cap B) \cup C$$

Graph the detailed solution below.



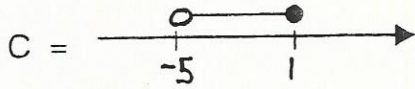
Give your answer in interval form:  $] -1, 5 ]$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid -1 < x \leq 5\}$

You try:

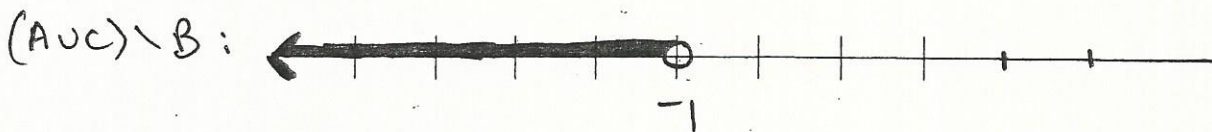
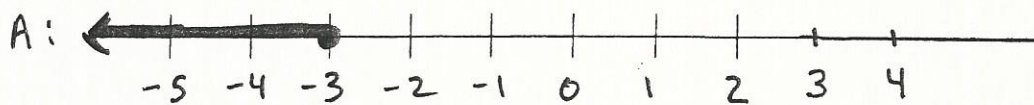
3.  $A = -\infty, -3]$

$B = [-1, 4]$



Perform the following set operations:  $(A \cup C) \setminus B$

Graph the detailed solution below.



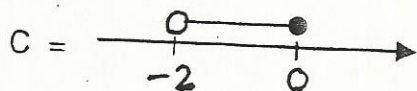
Give your answer in interval form:  $-\infty, -1[$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid x < -1\}$

You try:

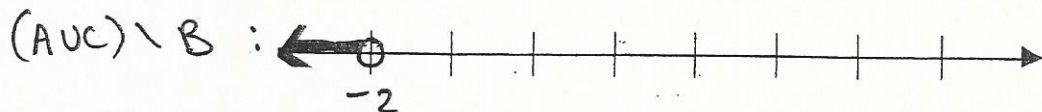
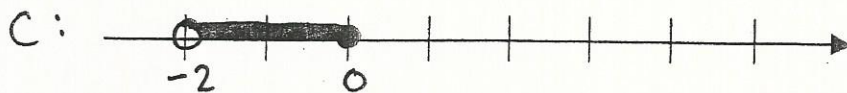
4.  $A = -\infty, -1]$

$$B = [-2, 4]$$



Perform the following set operations:  $(A \cup C) \setminus B$

Graph the detailed solution below.



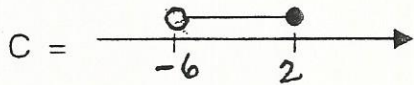
Give your answer in interval form:  $-\infty, -2[$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid x < -2\}$

You try:

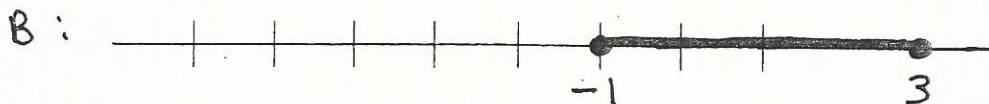
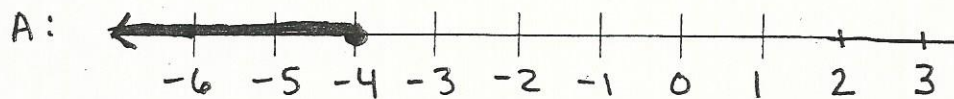
5.  $A = -\infty, -4]$

$B = [-1, 3]$



Perform the following set operations:  $(A \cup C) \setminus B$

Graph the detailed solution below.



Give your answer in interval form:  $-\infty, -1[$

Give your answer in set-builder notation:  $\{x \in \mathbb{R} \mid x < -1\}$