Math 5200/6200
Boundary Point Exercises

In the following we use our usual notation $\mathbb{R}$ denotes the reals, $\mathbb{Z}$ denotes the integers, $\mathbb{Q}$ denotes the rational numbers, .

For each of the following sets, calculate the boundary of the set:

$$
\begin{aligned}
M_1 &= \{x \mid 2x + 3 < 5\} \\
M_2 &= (0, 1) \cup (2, 3) \\
M_3 &= (0, 1) \cup (1, 3) \\
M_4 &= \mathbb{Z} \\
M_5 &= \mathbb{R} - \mathbb{Z} \\
M_6 &= \mathbb{Q} \cap (0, 2) \\
M_7 &= \left\{ \frac{1}{n} \;\middle|\; n \in \mathbb{Z} \text{ and } n > 0 \right\} \\
M_8 &= \mathbb{R} - \left\{ \frac{1}{n} \;\middle|\; n \in \mathbb{Z} \text{ and } n > 0 \right\}.
\end{aligned}
$$