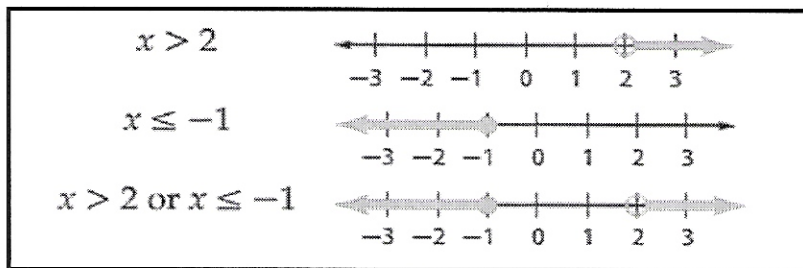


Inequalities Containing “Or”

- **Union (U)** – graph of a compound inequality containing “or”



- **Examples:** Solve each inequality. Then graph the solution set.

3. $a + 1 < 4$ or $a - 1 \geq 3$

$$\begin{array}{r} -1 \quad -1 \\ \hline a < 3 \end{array} \quad \begin{array}{r} +1 \quad +1 \\ \hline a \geq 4 \end{array}$$

$a < 3$ or $a \geq 4$



4. $-2m + 7 \leq 13$ or $5m + 12 > 37$

$$\begin{array}{r} -7 \quad -7 \\ \hline -2m \leq 6 \\ -2 \quad -2 \\ \hline m \geq -3 \end{array} \quad \begin{array}{r} -12 \quad -12 \\ \hline 5m > 25 \\ 5 \quad 5 \\ \hline m > 5 \end{array}$$

$m \geq -3$ or $m > 5$



Applications

5. The human ear can only detect sounds between the frequencies 20 Hertz and 20,000 Hertz. Write and graph a compound inequality that describes the frequency of sounds humans cannot hear. Let f = frequency

Can Hear: $20 < f < 20,000$

Cannot Hear: $f \leq 20$ or $f \geq 20,000$



6. A company is manufacturing an action figure that must be at least 11.2 centimeters and at most 11.4 centimeters tall. Write and graph a compound inequality that describes how tall the action figure can be. Let h = height

$11.2 \leq h \leq 11.4$

