

Inequalities with Special Solutions

Example 4: $10 - 8a \geq 2(5 - 4a)$?

$$\begin{aligned}10 - 8a &\geq 2(5 - 4a) \\10 - 8a &\geq 10 - 8a \\10 - 8a + 8a &\geq 10 - 8a + 8a \\10 &\geq 10\end{aligned}$$

Since the inequality $10 \geq 10$ is always true,

the solutions of $10 - 8a \geq 2(5 - 4a)$ are

all real numbers.

Example 5: $6m - 5 > 7m + 7 - m$

$$\begin{aligned}6m - 5 &> 7m + 7 - m \\6m - 5 &> 6m + 7 \\6m - 5 - 6m &> 6m + 7 - 6m \\-5 &> 7\end{aligned}$$

Since the inequality $-5 > 7$ is never true,

the inequality $6m - 5 > 7m + 7 - m$ has

no solution.