In problems 1-6 solve the given equation for $x$. (8 points each)

1. \( \frac{4}{x-1} + \frac{3}{x-2} = 5 \)

2. \( \frac{x^2}{2x-1} = 4 \)

3. \( \sqrt{2x+5} - x = 1 \)
4. \[ |3x - 5| = 4 \]

5. \[ x^4 - 14x^2 + 40 = 0 \]

6. \[ |2x - 5| = |3x + 8| \]
In problems 7-13 solve the given inequality. Give your solution in the indicated form. A number line has been provided on the problems that should be worked by testing values for \( x \). Be sure to appropriately mark your number line, indicated your test values, the resulting inequality, and whether the inequality is TRUE or FALSE. (8 points each)

7. \( 3 + x < 5 - 3x \leq 7 + x \) (Interval Solution)

Solution:

8. \( |5x - 3| > 7 \) (Inequality Solution)

Solution:
9. $|3x - 2| \leq |x - 4|$  
   (Interval Solution)

   Solution:

10. $x^2 - 3x > 18$  
    (Number Line Solution)

   Solution:
11. \(|5x + 3| < 13\)  
   (Interval Solution)

Solution:

12. \(\frac{2x + 1}{3x - 6} \leq 2\)  
   (Inequality Solution)

Solution:
13. \((x - 4)(2x + 1)(x + 3)^2 < 0\) (Interval Solution)

Solution: