Recall from last time the following identities:

(1)	Difference of Squares:	$a^2 - b^2 = (a+b)(a-b)$
(2)	Difference of Cubes:	$a^3 - b^3 = (a-b)(a^2+ab+b^2)$
(3)	Sum of Cubes:	$a^3 + b^3 = (a+b)(a^2-ab+b^2)$
(4)		$(a+b)^2 = a^2 + 2ab + b^2$
(5)		$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

Solve using the key number method. Write the solution in interval notation.

1. $(x+2)(x-3) > 0$ $(-\infty, -2) \cup (3, \infty)$

2. $x^2 - 9 \leq 0$ $[-3, 3]$

3. $(x-1)(x+4)(2x+1) \geq 0$ $[-4, -1/2] \cup [1, \infty)$

4. $x(x+1) \leq 2$ $[-2, 1]$

5. $\dfrac{x(x-1)}{(x+3)(x+5)} \geq 0$ $(-\infty, -5) \cup (-3, 0] \cup [1, \infty)$

6. $\dfrac{x^2-1}{x^2-5x+6} < 0$ $(-1, 1) \cup (2, 3)$

7. $\dfrac{x}{x+1} > 1$ $(-\infty, -1)$

8. $x + \dfrac{3}{x-1} \leq 5$ $(-\infty, 1) \cup [2, 4]$