Oct. 29

Day 5 - Solving Polynomial Inequalities

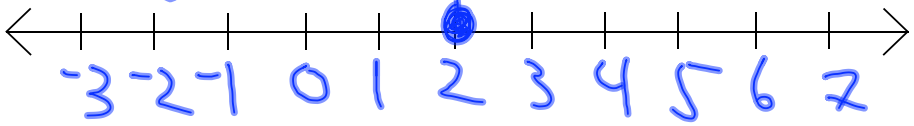
Review

Graph the following inequalities on the number line:

$2x - 4 \leq 0$

$2x \leq 4$

$x \leq 2$



$2x - 1 < 3x + 5$

$+1 \quad +1$

$2x < 3x + 6$

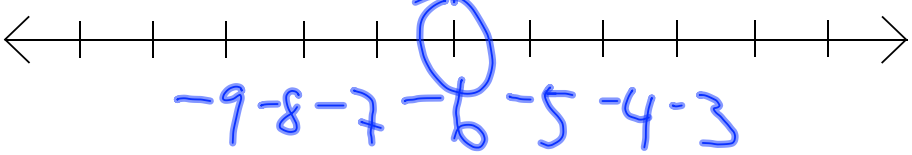
$-3x \quad -3x$

$-1x < 6$

$-1 \quad -1$

$x > -6$

Change the direction

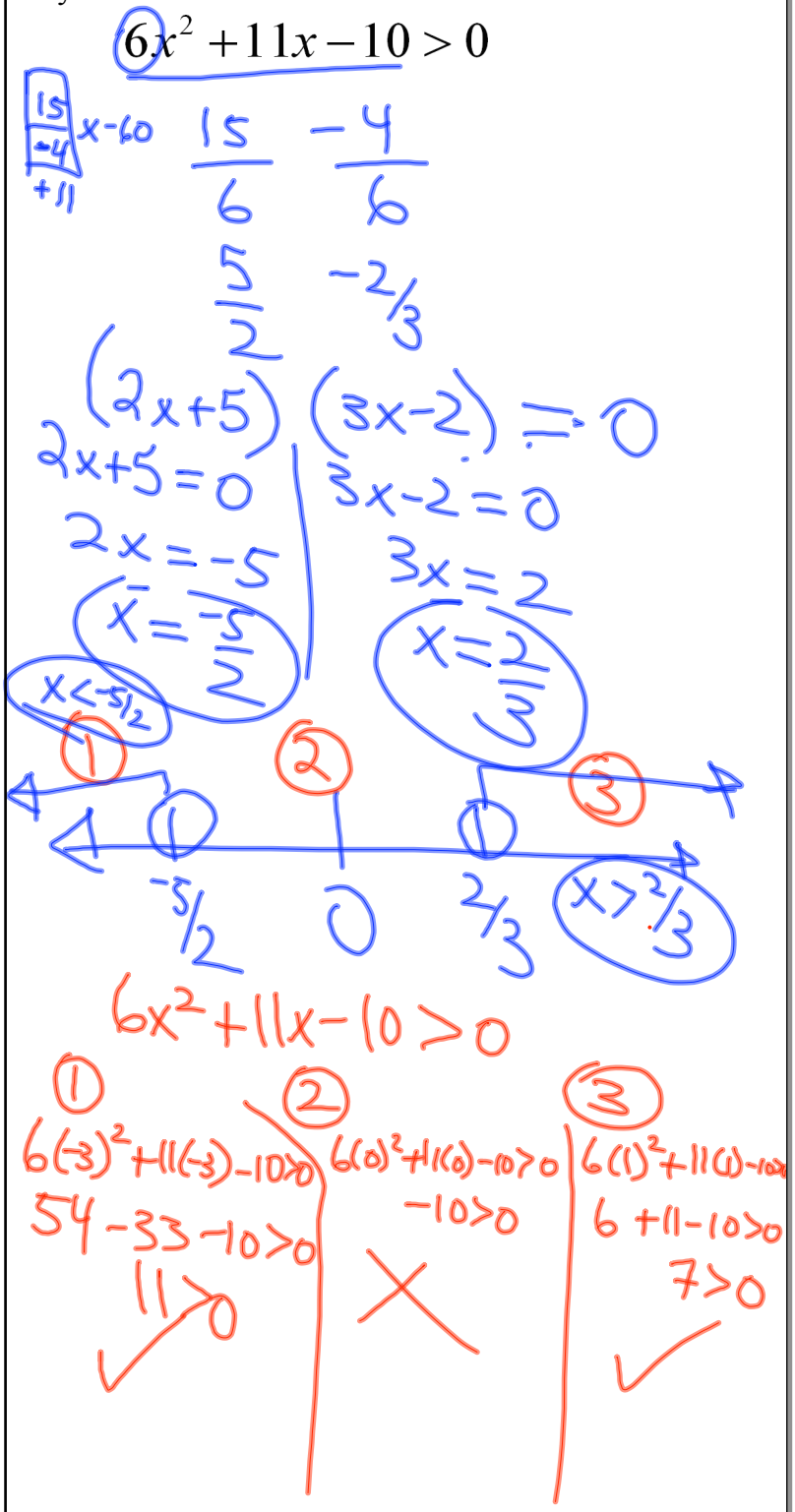


Steps for solving polynomial inequalities:

a. Determine the x-intercepts (polynomial factoring).
b. Determine for what values of x the function is greater than or less than zero by testing. (Test Interval)
c. Record the solution and graph on the number line.

Try it on these:

$$6x^2 + 11x - 10 > 0$$



$$x^3 + 4x^2 + x - 6 \geq 0$$

$x = -3$
$(x+3)$

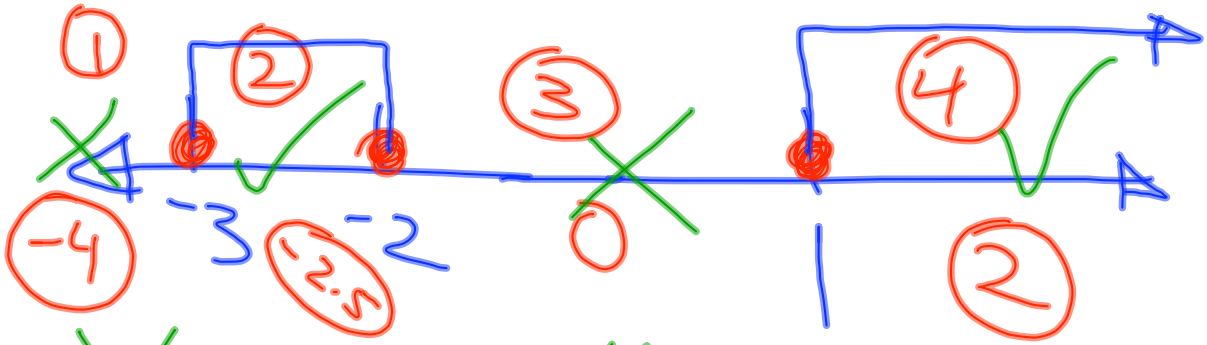
$$\begin{array}{c|cccc} -3 & 1 & 4 & 1 & -6 \\ & & -3 & -3 & 6 \\ \hline & 1 & 1 & -2 & 0 \end{array}$$

$(x+3)(x^2+x-2)$

$(x+3)(x+2)(x-1)$

$x+3=0$ $\quad x+2=0$ $\quad x-1=0$

$x=-3$ $\quad x=-2$ $\quad x=1$



$-10 \geq 0$ $\quad 0.875 \geq 0$ $\quad -6 \geq 0$ $\quad 20 \geq 0$

$-3 \leq x \leq -2$

$x \geq 1$

Write a quadratic inequality that has the following solution

$$-5 < x < 4$$

Assignment:
Pg. 264 4 ace, 7 i and iii, 9 ac, 10 ace