Classwork Polynomial and Rational Inequalities

Please work all problems on a separate sheet of paper.

Find and graph the solutions of the following inequalities. Express the solutions sets in interval notation.

(Hint for 4 and 5: if when you solve for x your answer is not real you DO NOT cross the x-axis, graph knowing the end behavior and the y intercept)

1. $3x^2+5x-2\le 0$
2. $x^2-9x+20>0$
3. $6x^2-x+3\le 2x^2+3x+2$
4. $x^2-4x+13\ge 0$
5. $x^2+8x+20\le 0$
6. $(x+3)(x-2)(x+5)<0$
7. $(x-3)^2(x+1)(x-5)^2\ge 0$
8. $x^3+3x^2+4x+12\ge 0$
9. $\dfrac{x-5}{x-2}<0$
10. $\dfrac{x+1}{x-6}\ge 0$
11. $\dfrac{2x+1}{x+3}>0$
12. $\dfrac{x-2}{x+6}>1$
13. $\dfrac{x}{x-4}\ge -1$