

MATH 149S

Homework 7

Solve the inequalities, and give your answers in the interval notation. Sketch (rough) graphs of the given polynomials. (Make sure that your graph and your solution to the inequality agree!)

1. $(x - 1)(x - 2)(x - 3)(x - 4) > 0$,
 $f(x) = (x - 1)(x - 2)(x - 3)(x - 4)$

2. $(x + 1)x(x - 1) < 0$,
 $g(x) = (x + 1)x(x - 1)$

3. $(x + 2)(x - 1)^2 \geq 0$,
 $h(x) = (x + 2)(x - 1)^2$

4. $(x + 3)(x + 1)^2(x - 1)^3(x - 3) > 0$,
 $p(x) = (x + 3)(x + 1)^2(x - 1)^3(x - 3)$

5. $(x + 2)x^3(x - 3)^2(x^2 + 5) \leq 0$,
 $q(x) = (x + 2)x^3(x - 3)^2(x^2 + 5)$

Note. In case you would like to copy-paste the inequalities and functions into your homework, here is a link to the overleaf file with this assignment:

<https://www.overleaf.com/read/swdgrdvthpxf>