

- Solve and graph the solution set on a number line: $x^3 + 5x^2 \leq -4x - 20$

FIRST REWRITE ...

$$x^3 + 5x^2 + 4x + 20 \leq 0$$

Factor completely ...

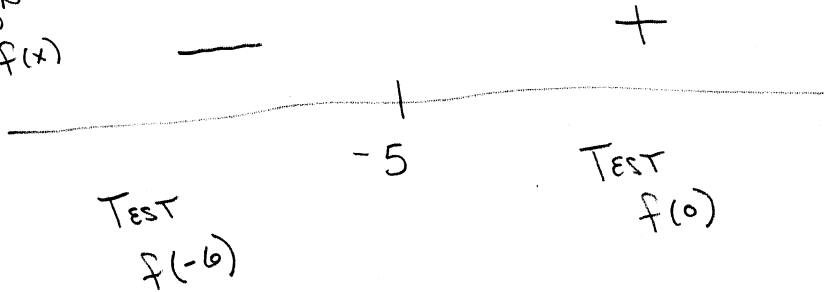
$$x^2(x+5) + 4(x+5) \leq 0$$

$$\underbrace{(x^2+4)}_{f(x)}(x+5) \leq 0$$

x^2+4 HAS NO REAL ZEROS. THE ONLY REAL

ZERO IS $x = -5$

Sign of
 $f(x)$



$$f(x) \leq \text{ON } (-\infty, -5]$$