Tutoring Center

LeConte 105

Open Monday - ~~Fri~~ Thursday

11 am - 4 pm

I will be there Thursdays 10 - noon

office Hours:

Mondays & Wednesdays

12:30 - 2:00

LeConte 317N.

Tues / Thurs 4-5

Wednesday 7:30 - 8:30

$\Big\}$ SI.



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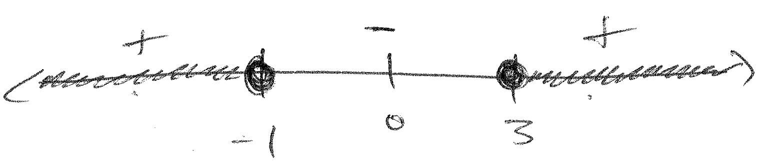
E.g.: $x^2 - 2x - 3 \geq 0$.

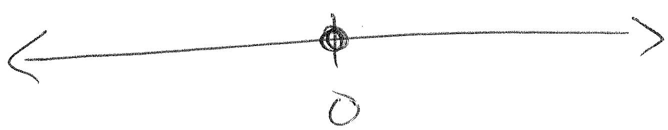
$$(x-3)(x+1) = x^2 + x - 3x - 3$$
$$= x^2 - 2x - 3.$$




$(-\infty, -1] \cup [3, \infty)$ ← set of solutions to $x^2 - 2x - 3 \geq 0$.

E.g.: $x^2 \le 0$

Get a solution $x=0$ since $0^2=0$.
This is the only solution because $x^2$ is always non-negative.




E.g.: $x^2+1 \ge 0$

Every real number satisfies this inequality, so the solution set is $(-\infty,\infty)=\mathbb{R}$

E.g.: $-x^2-1 \ge 0$

Equivalent by multiplying both sides by $-1$ to solving

$$x^2+1 \le 0$$

The only possible solution is when $x^2+1=0$, but the discriminant of $x^2+1$ is $D=0^2-4(1)(1)=-4<0$

There are no real solutions to $x^2+1=0$, so ③
the inequality $-x^2-1 \geq 0$ has no real solutions,
the solution set is the empty set, $\emptyset$.

Rationalizing the denominator

Homework

$$(z+3)^2 - 10(z+3) = (z+3)((z+3)-10)$$

$$x^2 + 3xy = x(x+3y)$$

B.3

41. $\dfrac{1}{2-\sqrt{3}}\left(\dfrac{2+\sqrt{3}}{2+\sqrt{3}}\right) = \dfrac{2+\sqrt{3}}{4+\cancel{2\sqrt{3}}-\cancel{2\sqrt{3}}-3} = \dfrac{2+\sqrt{3}}{1} = 2+\sqrt{3}.$

43. $\dfrac{2}{\sqrt{2}+\sqrt{7}}\dfrac{(\sqrt{2}-\sqrt{7})}{(\sqrt{2}-\sqrt{7})} = \dfrac{2\sqrt{2}-2\sqrt{7}}{2-\cancel{\sqrt{2}\sqrt{7}}+\cancel{\sqrt{2}\sqrt{7}}-7}$

$$= \frac{(-1)}{(-1)}\frac{2\sqrt{2}-2\sqrt{7}}{-5}$$

$$= \frac{2\sqrt{7}-2\sqrt{2}}{5}$$