You see, Dr. Zimmer, the scientist that supplied me with the jet pack*, has asked to monitor the fuel tanks, since I am the first person to test the pack.

Since I may use the left jet more to turn, for example, the pressure in the fuel tanks doesn't stay equal.

If I notice this on the gauges on the hand jets, I can equalize the pressure by hitting a switch on the base of the pack.

So if one is at 15 and the other is at 13, they will equalize to 14.

Right! And it's easy to see what the new pressure will be when they are close like that — it's just the value in the middle. But what if the pressures are, say, 7 and 25?

*Operation Comics #4
It's the same idea. We did this back when we were trying to catch the cheetah*. You're taking the mean of the two numbers.

Yeah, just add them and divide by two, the amount of numbers you have.

So 7 plus 25 is 32, and 32 divided by 2 is 16.

Right, which if you look on a number line, is still halfway between 7 and 25.

They always tested the pack with full fuel tanks.

What they are learning is that, as the fuel ages, it shrinks, so I could actually end up with negative pressure in a tank.

OK, that makes sense. The other issue is worse.

So the jet with that tank wouldn't work?
That’s right! And he said that I have to be careful about equalizing the pressure in that case, because it could cause both jets to stop working.

So how am I supposed to know when to do it and when not to do it?

Oh, I get it. If the mean of the two pressures is zero or negative, then you’re on the ground.

Well, let’s think about the pressure readings on a number line again.

Suppose one tank has a negative reading, over here somewhere.

The other tank would have to be the same distance on the positive side.

Then in order for zero to be in the middle...

So if one tank reads \(-5\) and the other one read 5, then the average pressure is 0.

The two numbers are additive inverses. You just multiply one number by \(-1\) to get the other one.
So $-1$ times $5$ is $-5$. And $-1$ times $-5$ is $5$? That doesn’t make sense to me.

Well, look at the pattern.

- $5 \times 2 = 10$
- $5 \times 1 = 5$
- $5 \times 0 = 0$
- $5 \times -1 = -5$

Each time, your answer decreases by $5$, so the next answer for $5 \times -1$ is $-5$.

$5 \times 2 = 10$
$5 \times 1 = 5$
$5 \times 0 = 0$
$5 \times -1 = -5$

Same thing with a negative times a negative. Your answer increases by $5$ each time, so the next answer for $-5 \times -1$ is $5$.

$-5 \times 2 = -10$
$-5 \times 1 = -5$
$-5 \times 0 = 0$
$-5 \times -1 = 5$

So... Two wrongs make a right?

No, wrongs are additive. Like how $-5$ plus $-5$ is $-10$. They are talking about multiplication.

Gotcha! So the additive inverse of a number is the same distance away from zero on the number line, just on the other side of zero.

By George, I think he’s got it!