**Epic Fail, Epic Win**



1. Solve the following equation.

$$5\left(x+2\right)=3x+4$$

1. Using the [Pan Balance Applet](http://illuminations.nctm.org/ActivityDetail.aspx?ID=10) at NCTM Illuminations, I entered one side of the equation in the left pan and the other side in the right pan. What does the image above tell you about the value(s) of *x* that makes the pans balance?
2. Solve the following equations.
3. $2\left(x-2\right)=3+2x$ (b) $3x+7=-(4-3x)$
4. What happened? We get false statements and cannot find a real number that makes the statements true.
5. **EPIC FAIL!**

What do the following images tell you about the value(s) of *x* that make the pans balance?

1. Solve the following equations.
2. $2\left(x-2\right)=-4+2x$ (b) $0.2x-4=\frac{1}{5}(x-20)$
3. What happened? We get true statements. The expressions on both sides are identical.

**EPIC WIN!**

1. What do the following images tell you about the value(s) of *x* that make the pans balance?



**Vocabulary:**

Equations where **no** value of *x* can make them true are called contradictions(EPIC FAILS!), and equations where **any** value of *x* can make them true are called identities (EPIC WINS!).

1. Write down everything you see about the equations, the graphs and the solutions for the above problems.