**Representing Expressions with Stories and Flowcharts**

When we think of stories we usually don’t think of algebra, but mathematical expressionstell stories too! When we see an expression involving a variable, something is happening to that variable. In other words, something is *being done* to the variable. Let’s first use a story to represent what is being done to the variable. Use the order of operations to decide what steps are taken to evaluate the expression.

|  |  |
| --- | --- |
| **Expression** | **Story of *x*** |
| $$x+6$$ |  |
| $$x/3$$ |  |
| $$8x$$ |  |
| $$x-5$$ |  |
| $$2x+6$$ |  |
| $$-6x+3$$ |  |
| $$\frac{x}{2}-4$$ |  |
| $$\frac{x+5}{2}$$ |  |
| $$8-x$$ |  |
| $$\frac{-7x+2}{8}$$ |  |
| $$\frac{2x+7}{3}$$ |  |
| $$\frac{3-x}{5}$$ |  |

We can also represent the *story of x* by a *flowchart*. The flowchart below displays the story of $x$ for the expression $6x+5$.



1. Use a flowchart to represent the following expressions involving two operations:
2. $7x+1.75$



1. $x/3+12$



1. $5x-11$



1. $-x+5$



1. $-5-3x$



1. Use a flowchart to represent the following expressions involving three operations:

$$A. \frac{2x+5}{6}$$



$$B. \frac{-3x+5}{11}$$



$$C. \frac{4x-0.5}{-3}$$



$$D. \frac{6-2x}{5}$$



1. Let’s now convert stories to mathematical expressions. Given the story on *x*, write a mathematical expression that describes the story. Use *x* to represent the unknown number.
2. Multiply a number by 7.
3. Add 14 to a number.
4. Subtract a number from 12.
5. Subtract 6 from a number.
6. Divide a number by -3
7. Divide -8 by a number.
8. Multiple a number by 4, then add 3.
9. Multiply a number by 8, then add –11.
10. Subtract 4 from a number, then multiply by 6.
11. Add -1 to a number, then divide by 3.
12. Divide a number by 2, then subtract 13.