1.1 – Solving Multi-Step Equations in One Variable

Note: The goal to solving any linear equation is to manipulate it so you only have to really solve a 2-step equation. If you follow what I say, you will be able to solve any linear equation that stands before you!

Ex. Solve:  Steps

Ex. Solve: $-\frac{1}{4}\left(5x+12\right)=-4x+\frac{1}{2}(-9x-17)$

Practice!

Solve each equation below.

1. $-2\left(3x-4\right)-5x=10-3x-15$ 2. $-\frac{1}{3}\left(15x-3\right)-2x=\frac{3}{2}x-\frac{5}{2}(3x-1)$

Ex. Zebracki and Whitehead park their sweet BMX bikes side-by-side. Zebracki leaves to visit friends, and Whitehead leaves 30 minutes later, because he got his shoelace caught in the chain, headed for the same destination. Zebracki pedals 5 miles per hour slower than Whitehead. After 1 hour, Whitehead passes Zebracki. At what speed are they each pedaling?

3. Boone Michael is finally getting a gym membership so he can become as buff as Mr. Z. A membership at Gold’s Gym costs $25 per month plus a $125 sign-up fee. Planet Fitness costs $30 per month plus a $50 sign-up fee. After how many months will the memberships cost the same?

Ex. Ashley and Amaya went for a run because that’s what runners do, they run. Ashley began running 50 seconds before Amaya. Ashley ran at a rate of 7 feet per second. Amaya ran at a rate of 10 feet per second. How many seconds had Ashley been running at the time when the two friends had run exactly the same distance? Round your answer to the nearest tenth.

4. Driving to your friend’s house, you travel at an average speed of 35 miles per hour. On your way home, you travel at an average speed of 40 miles per hour. If the round trip took you 45 minutes, how far is it from your house to your friend’s house?