15.8 Applications Using Rational Equations

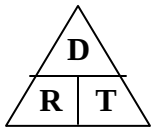
- **Problems Involving Work** $\left(\frac{t}{a}+\frac{t}{b}=1\right)$

Ex. Joe can paint a house in 3 hours. Sam can paint the same house in 5 hours. How long will they take to paint the house if they work together?

Let t = the number of hours required for Joe and Sam to paint the house together

Ex. After a large snowfall, Franklin can shovel the snow from the sidewalk in 6 minutes and Shawnna can do it 8 minutes. How long will it take them to clear the sidewalk if they work together?

❖ **Motion Problems** $(d = r \cdot t)$



Ex. If an airplane travels 1050 miles in the same amount of time that an automobile travels 150 miles, and the speed of the airplane is 50 mph more than six times the speed of the car, how fast is each moving?

Ex. (#12) Nick's tractor is just as fast as Evan's. It takes Nick 1 hr more than it takes Evan to drive to town. If Nick is 20 mi from town and Evan is 15 mi from town, how long does it take Evan to drive to town?