

Classwork/Notes

- Bob the Builder and Fix-It Felix are building a skyscraper. Bob can build 16 feet of building in an hour. Felix can build 28 feet in 1.5 hours. How many feet of skyscraper can they build working together?
 $\frac{16 \cdot 3}{1 \cdot 3} + \frac{28 \cdot 2}{1.5 \cdot 2} = \frac{48}{3} + \frac{56}{3} = \frac{104}{3} = 34\frac{2}{3} \text{ ft/hr}$
- Wreck-It Ralph and Donkey Kong are throwing barrels to tear down a skyscraper. Ralph can destroy 18 feet of building in 2 hours. D.K. can destroy 8 feet in half an hour. How long will it take them to destroy a 50-foot skyscraper if they work together?
 $\frac{18}{2} + \frac{8}{0.5} = 9 + 16 = 25 \text{ ft/hr} \Rightarrow 25 \frac{\text{ft}}{\text{hr}} \cdot t = 50 \text{ ft} \Rightarrow t = 2 \text{ hrs}$
- Johnny Appleseed can plant 18 apple trees per day. Johnny and Mike can plant 100 trees in 3 days. How many trees can Mike plant in one day?
 $\frac{18 \cdot 3}{1 \cdot 3} + \frac{m \cdot 3}{3} = \frac{100}{3} \Rightarrow 54 + 3m = 100 \Rightarrow 3m = 46 \Rightarrow m = 15\frac{2}{3} \text{ trees per day}$
- Distance is equal to rate, times time ($d=r \cdot t$). If you drive a car at a constant speed of 60 mph for 4 hours, how many miles were driven?
 $d = 60 \cdot 4 = 240 \text{ mi}$
- You drive a boat 3 miles down a calm river for one hour. As you turn around to drive back, the current suddenly picks up and is pushing against your boat at a rate of 2 mph. How long will it take you to get home?
 $3 = 1 \cdot t \Rightarrow t = 3 \text{ hours}$
- You are competing in a 5 mile triathlon in which you run, bike, and then swim. You finish with a time of 1 hour and 40 minutes. You run at a rate of 8 mph, and bike at twice that speed. If you run for 1.5 miles, bike for 3, and swim the remaining distance, how fast do you swim?

- Homework $\frac{2}{1} + \frac{3 \cdot 4}{3} \Rightarrow \frac{2}{1} + \frac{12}{3} \Rightarrow 2 + 4 = 6 \text{ ft/hr}$ $50 = 6 \cdot t \Rightarrow t = 8\frac{1}{3} \text{ hrs}$
- A brick skyscraper being constructed is going to be 50 feet tall. A bricklayer can lay 2 feet of brick per hour. A machine can lay 3 feet of brick in 45 minutes. How many feet of brick can be laid in one hour? How many hours will it take to complete the skyscraper?
 - A 74 foot metal pipe is being driven into the ground to dig a well. A working crew can bury 3 feet of pipe in 1.5 hours, while a machine can bury 4 feet of pipe in 45 minutes. How many days would it take to bury 4 pipes if the machine and the crew work together?

- $d=rt$ $296 = \frac{22}{3} t \Rightarrow t = 40.36 \text{ hours} = 1\frac{2}{3} \text{ days}$ $\frac{3 \cdot 2}{1.5 \cdot 2} + \frac{4 \cdot 4}{.75 \cdot 4} = \frac{6}{3} + \frac{16}{3} = \frac{22}{3} = 7\frac{2}{3}$
- A patch of rain clouds are 6000 feet above the ground. Rain falling straight to the ground takes 186.5 seconds to reach the ground. At what speed does the rain fall?
 $6000 = r \cdot 186.5 \Rightarrow r = 32.17 \frac{\text{ft}}{\text{sec}}$
 - You drive a boat 12 miles up a river against the current. The trip takes you two hours. On the way back home, the current has stopped and the trip takes 1 hour and 30 minutes. How fast was the current on the way up the river?

