



## Problem of the Week

### Problem A and Solution

### Bicycle Time

#### Problem

Mr. Turnblatt's bicycle needs to be serviced every 600 km. Each year, he rides his bike between March and November for 35 consecutive weeks, 5 days a week, 8 km a day.

- (a) If he has his bike serviced before his first trip of the year, how many weeks will it be until his bicycle needs the next service?
- (b) How many times will he have his bike serviced in one year?

#### Solution

- (a) Since Mr. Turnblatt rides his bike 5 days a week and 8 km a day, then in one week he travels  $5 \times 8 = 40$  km.

We can skip count by 40 to see how many weeks it takes to get to 600 km:

40, 80, 120, 160, 200, 240, 280, 320, 360, 400, 440, 480, 520, 560, 600

So after 15 weeks Mr. Turnblatt will have ridden 600 km and will need to have his bike serviced.

Alternatively, we could have divided  $600 \div 40 = 15$  to determine that it takes Mr. Turnblatt 15 weeks to ride 600 km.

- (b) From part (a), we know that his bicycle needs to be serviced every 15 weeks. So, the bike needs to be serviced at the end of Week 15 and at the end of Week 30. After that, since there are only 5 more weeks of biking, the bike does not need to be serviced until the following year.

Counting the service before the first trip of the year, Mr. Turnblatt will need to have his bike serviced 3 times in a year.