# Unit 3 Lesson 21: Using Operations on Decimals to Solve Problems

## 1 Close Estimates (Warm up)

### Student Task Statement

For each expression, choose the best estimate of its value.

1. $76.2 \div 15$
    - 0.5
    - 5
    - 50
2. $56.34 \div 48$
    - 1
    - 10
    - 100
3. $124.3 \div 20$
    - 6
    - 60
    - 600

# 2 Applying Division with Decimals (Optional)

## Student Task Statement

Your teacher will assign to you either Problem A or Problem B. Work together as a group to answer the questions. Be prepared to create a visual display to show your reasoning with the class.

Problem A:

A piece of rope is 5.75 meters in length.

1. If it is cut into 20 equal pieces, how long will each piece be?
2. If it is cut into 0.05-meter pieces, how many pieces will there be?

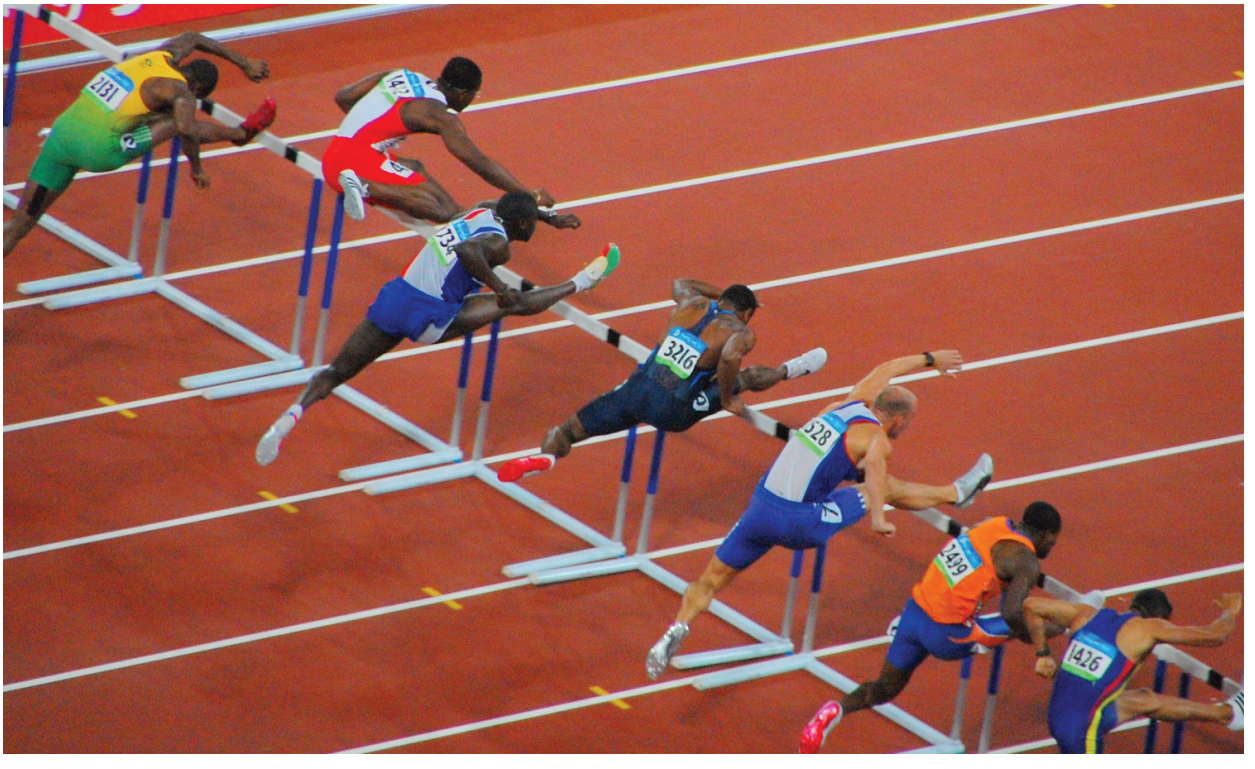
Problem B:

A tortoise travels 0.945 miles in 3.5 hours.

1. If it moves at a constant speed, how many miles per hour is it traveling?
2. At this rate, how long will it take the tortoise to travel 4.86 miles?

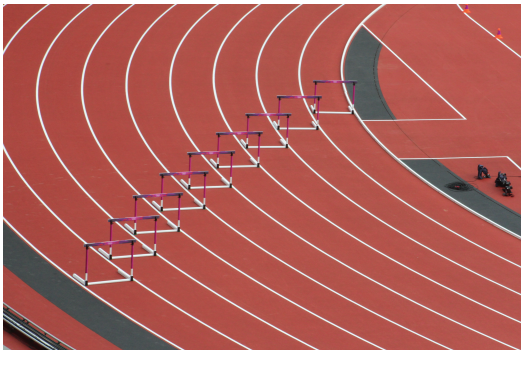
# 3 Distance between Hurdles

## Images for Launch



## Student Task Statement

There are 10 equally-spaced hurdles on a race track. The first hurdle is 13.72 meters from the start line. The final hurdle is 14.02 meters from the finish line. The race track is 110 meters long.



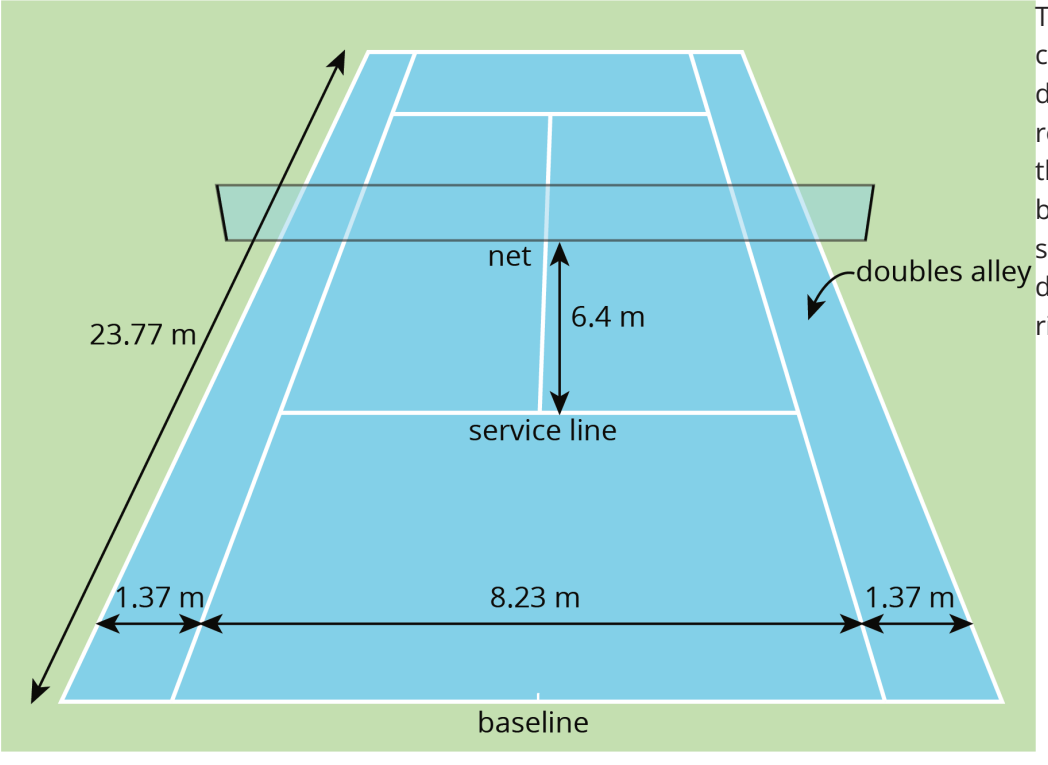
1. Draw a diagram that shows the hurdles on the race track. Label all known measurements.
2. How far are the hurdles from one another? Explain or show your reasoning.
3. A professional runner takes 3 strides between each pair of hurdles. The runner leaves the ground 2.2 meters *before* the hurdle and returns to the ground 1 meter *after* the hurdle.

   About how long are each of the runner's strides between the hurdles? Show your reasoning.

# 4 Examining a Tennis Court (Optional)

## Student Task Statement

Here is a diagram of a tennis court.




The full tennis court, used for doubles, is a rectangle. All of the angles made by the line segments in the diagram are right angles.

1. The net partitions the tennis court into two halves. Is each half a square? Explain your reasoning.
2. Is the service line halfway between the net and the baseline? Explain your reasoning.
3. Lines painted on a tennis court are 5 cm wide. A painter made markings to show the length and width of the court, then painted the lines to the outside of the markings.
    a. Did the painter's mistake increase or decrease the overall size of the tennis court? Explain how you know.
    b. By how many square meters did the court's size change? Explain your reasoning.

## Activity Synthesis