

Exercises on fractions with unit conversions and short division with decimals

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Exercise 1

Reehan wants to run a marathon.

He knows that if, beginning from his house, he runs in a straight line on the footpath for long enough, he will reach a red horse statue. Reehan also knows that if he makes a U-turn once he reaches the statue, then runs in a straight line back to his house, he will have completed a full marathon.



- A) If the distance from Reehan's house to the red horse statue is 21,097.5 *meters*, what is the distance of a full marathon in *kilometers*?
- B) Reehan begins his marathon. After 30 minutes, he checks his watch and observes that he has run 7 *kilometers*.
What fraction of the marathon has Reehan completed after 30 minutes?

Challenge

We can have decimals inside of fractions, but these fractions are in what we call *non-standard form*. A fraction is in standard form if both its numerator and denominator are whole numbers.

Is your answer to (B) in standard form or non-standard form? If it is non-standard form, how could you convert it to standard form?

C) Can you

- i. Evaluate $21.0975 \div 7$ using short division?
- ii. What remainder do we get?
- iii. Challenge
How could we express this remainder as a fraction?

D) Reehan continues to run at the same speed that he was running in (B), for another hour.

- i. What fraction of the marathon has Reehan completed now?
- ii. Has he reached the red horse statue yet?
- iii. What fraction of the marathon does Reehan still need to complete?
- iv. What are the *values* of the fractions that are your answers to (D)(i) and (D)(iii)?

Tip

The *value* of a fraction is its numerator divided by its denominator.

For instance, the *value* of the fraction $\frac{2}{1}$ is $2 \div 1$ which equals 1.