

Unit 8 Overview – Ratios

Learning Outcomes

A1. Solve problems that involve the application of rates.

- 1.1 Interpret rates in a given context, such as the arts, commerce, the environment, medicine or recreation.
- 1.2 Solve a rate problem that requires the isolation of a variable.
- 1.3 Determine and compare rates and unit rates.
- 1.4 Make and justify a decision, using rates.
- 1.5 Represent a given rate pictorially.
- 1.6 Draw a graph to represent a rate.
- 1.7 Explain, using examples, the relationship between the slope of a graph and a rate.
- 1.8 Describe a context for a given rate or unit rate.
- 1.9 Identify and explain factors that influence a rate in a given context.
- 1.10 Solve a contextual problem that involves rates or unit rates.

A2. Solve problems that involve scale diagrams, using proportional reasoning.

- 2.1 Explain, using examples, how scale diagrams are used to model a 2-D shape or a 3-D object.
- 2.2 Determine, using proportional reasoning, the scale factor, given one dimension of a 2-D shape or a 3-D object and its representation.
- 2.3 Determine, using proportional reasoning, an unknown dimension of a 2-D shape or a 3-D object, given a scale diagram or a model.
- 2.4 Draw, with or without technology, a scale diagram of a given 2-D shape according to a specified scale factor (enlargement or reduction).
- 2.5 Solve a contextual problem that involves scale diagrams.

A3. Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects.

- 3.1 Determine the area of a 2-D shape, given the scale diagram, and justify the reasonableness of the result.
- 3.2 Determine the surface area and volume of a 3-D object, given the scale diagram, and justify the reasonableness of the result.
- 3.3 Explain, using examples, the effect of a change in the scale factor on the area of a 2-D shape.
- 3.4 Explain, using examples, the effect of a change in the scale factor on the surface area of a 3-D object.
- 3.5 Explain, using examples, the effect of a change in the scale factor on the volume of a 3-D object.
- 3.6 Explain, using examples, the relationships among scale factor, area of a 2-D shape, surface area of a 3-D object and volume of a 3-D object.
- 3.7 Solve a spatial problem that requires the manipulation of formulas.
- 3.8 Solve a contextual problem that involves the relationships among scale factors, areas and volumes.

By the end of the unit, you should be able to solve this type of question...

A small fridge has a capacity of 2.2 cubic feet. If the dimensions were all increased by 20%, what would be the new capacity of the fridge (to one decimal place)?

Unit 8 Lessons

8.1 Rates

8.2 Scale

8.3 3D Objects

Quiz **Total = 4 classes**