Problem 3.3

An **inverse variation** is a relationship between two non-zero integers if

$y=\frac{k}{x}$ or xy = k where k is a constant that is not 0

Part A Read the top of page 52.

1. Write an equation relating the cost *y* per student to the number of students *x*.

2. Use your equation to make a graph showing how the cost per student changes as the number of students increases.

Part B

1. Find the change in the cost per student as the number of students increases from:

a) 10 to 20 b) 100 to 110 c) 200 to 210

2. How do your results show that the relationship between the number of students and the cost per student is not linear?

Part C

1. Find the change in the per-student cost as the number of students increases from:

a) 20 to 40 b) 40 to 80 c) 80 to 160

2. Describe the patter in your results.

Explain how your equation from Question A shows this pattern.

Part D The science teachers decide to charge $5 per student for the trip. They will use any extra money to buy science equipment for the school.

1. Write an equation for the amount y the teachers will collect if x students fo on the trip.

2. Sketch a graph of the relationship.

3. This is a linear relationship/inverse variation.