Focus & Within Grade Coherence

Task Handout, Grade 8

Major Task #1

The following table shows the amount of garbage that was produced in the US each year between 2002 and 2010 (as reported by the EPA).

| t (years)	2002	2003	2004	2005	2006	2007	2008	2009	2010
G (million tons)	239	242	249	254	251	255	251	244	250

Let's define a function which assigns to an input *t* (a year between 2002 and 2010) the total amount of garbage, *G*, produced in that year (in million tons). To find these values, you can look them up in the table.

a. How much garbage was produced in 2004?

b. In which year did the US produce 251 million tons of garbage?

c. Does the table describe a linear function?

d. Draw a graph that shows this data.

Major Task #2

The graphs below show the cost *y* of buying *x* pounds of fruit. One graph shows the cost of buying *x* pounds of peaches, and the other shows the cost of buying *x* pounds of plums.
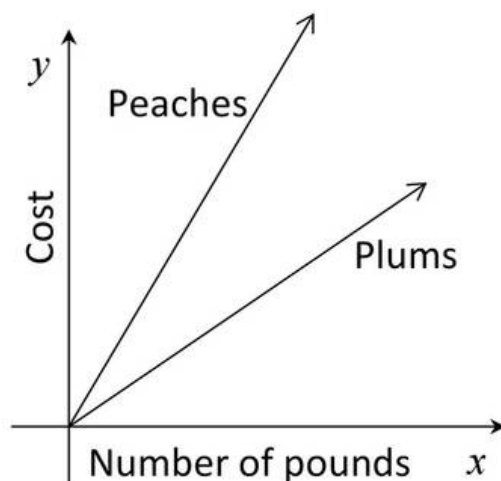

a. Which kind of fruit costs more per pound? Explain.

b. Bananas cost less per pound than peaches or plums. Draw a line alongside the other graphs that might represent the cost *y* of buying *x* pounds of bananas.

Supporting Task #1

Medhavi suspects that there is a relationship between the number of text messages high school students send and their academic achievement. To explore this, she asks each student in a random sample of 52 students from her school how many text messages he or she sent yesterday and what his or her grade point average (GPA) was during the most recent marking period. The data are summarized in the scatter plot of number of text messages sent versus GPA shown below.
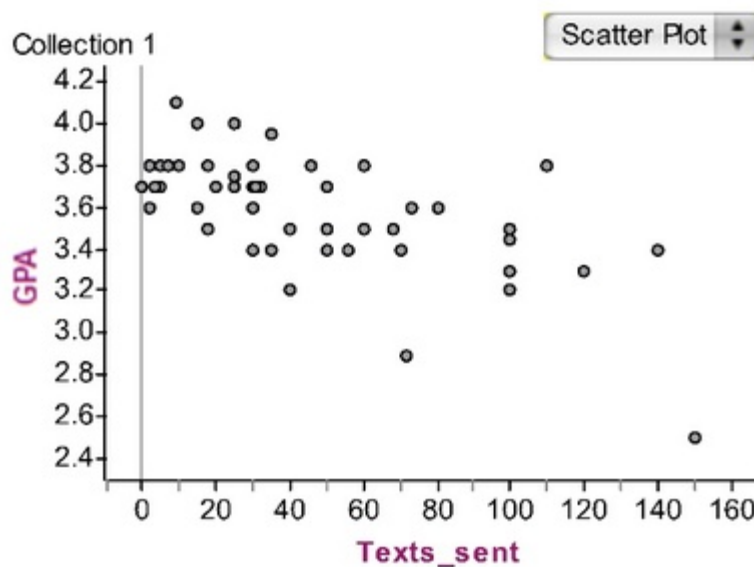

Describe the relationship between number of text messages sent and GPA. Discuss both the overall pattern and any deviations from the pattern.

Within Grade Coherence Task #1

A customer is comparing two different text message plans at Cellular Bargains. He wants to find out which plan allows the most text messages for the same cost. The Pay Per Text Plan charges $10 per month and $0.10 for each text message. Write a function that models this plan, stating what your variables represent.

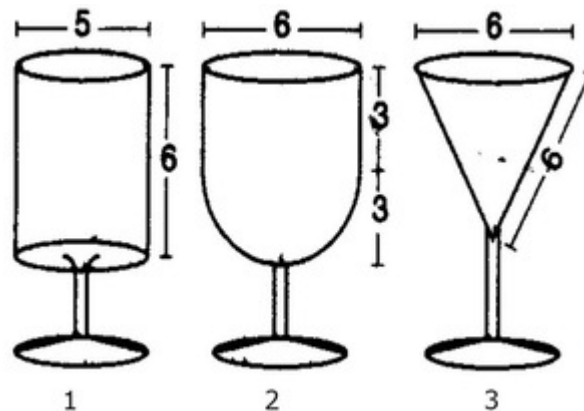The Frequent Text Plan is modeled by the graph shown below.
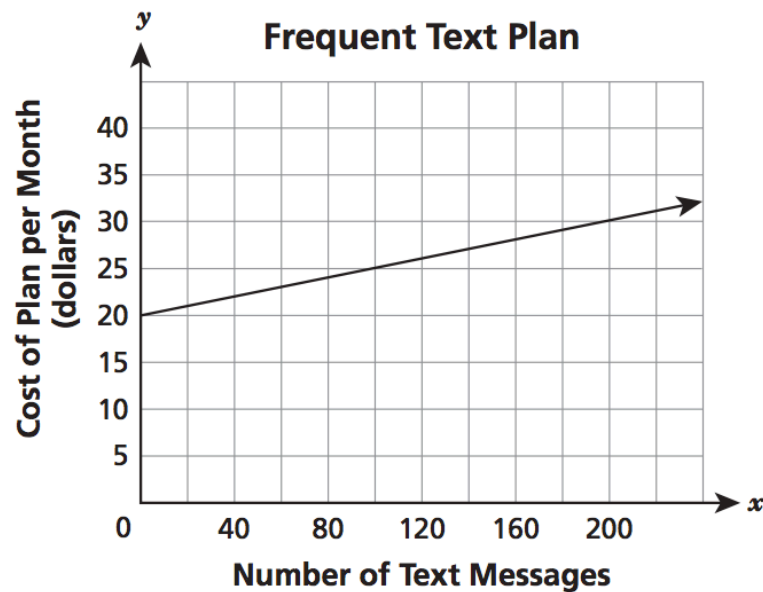
How many text messages would result in the same cost per month for the two plans?

Within Grade Coherence Task #2

The diagram shows three glasses (not drawn to scale). The measurements are all in centimeters.

The bowl of glass 1 is cylindrical. The inside diameter is 5 cm and the inside height is 6 cm.

The bowl of glass 2 is composed of a hemisphere attached to cylinder. The inside diameter of both the hemisphere and the cylinder is 6 cm. The height of the cylinder is 3 cm.

The bowl of glass 3 is an inverted cone. The inside diameter is 6 cm and the inside slant height is 6 cm.

a. Find the vertical height of the bowl of glass 3.

b. Calculate the volume of the bowl of each of these glasses.

c. Glass 2 is filled with water and then half the water is poured out. Find the height of the water.