

Making a bejeweled Mother's Day card

I've got this great idea for an activity in my class but I need some help. I want to let my students create a card for their mothers in time for Mother's Day (May 14th).

I thought that I could supply my students with a heart outline that could be Printed on a piece of construction paper and then folded into a card.

Students could print on the card whatever greeting or message that they wanted and then decorate the heart with sequins¹ or whatever.

I'll need to buy, ahead of time, enough sequins for all of my students. If I plan this right, I think that I can buy them pretty cheaply online.

Here's what I've found:

Sizes available:

- 5mm (1/5") 800 pieces per bag
- 8mm (1/3") 200 pieces per bag

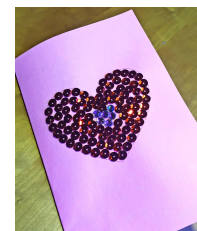
Pricing:

1 bag: \$.45

12 bags of the same color and size: \$.29 (\$3.48 per 12 bags)

The larger sized sequins would take my students less time and require fewer sequins to cover the heart but I'll let you decide which sized sequins you think that I should buy.

Here's a picture of what their cards could look like:



I need to figure out how many bags of sequins to buy. Can you help me?

I imagine that I need the approximate area of my heart and how many sequins it will take to fill that area. But I couldn't find a formula for the area of a heart.

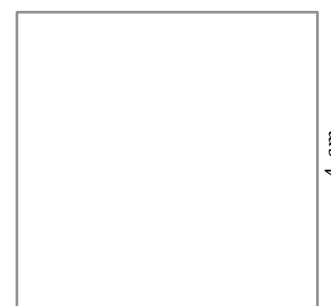
1. What ideas do you have for how I might calculate the surface area of my heart?

I guess that I'm going to need a square centimeter area to help me calculate this.

2. To the right is a 4 cm square. How many of either sized sequins will it take to fill this box?

3. Why didn't I just draw a 1 cm square box to make this estimation?

4. Make a guess about how many sequins it will take to cover this whole heart.



4 cm

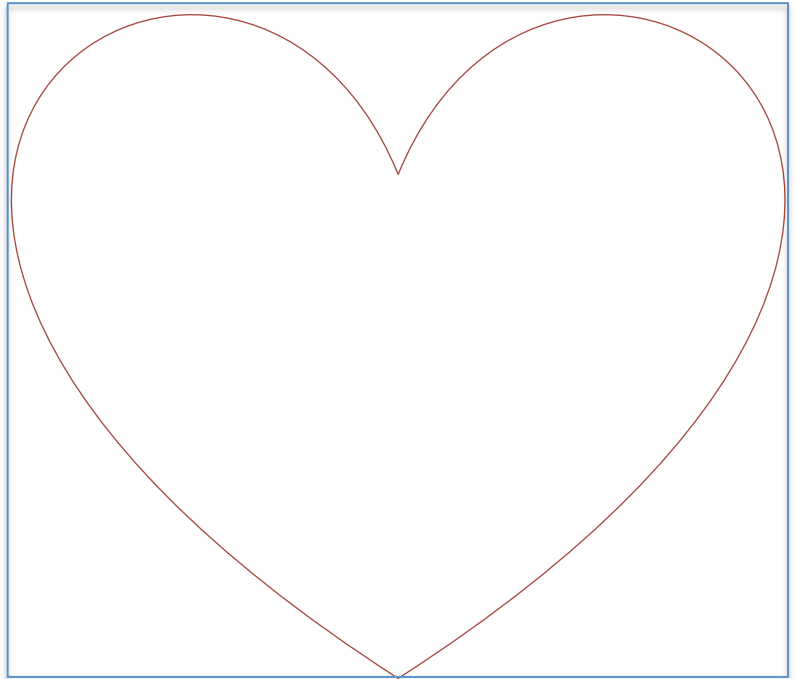
4 cm

I figure that there is less square area in this heart than there is in the rectangular box that I've drawn to surround it.

5. How many square centimeters of area are in the surrounding box?

If I used this area number to buy my sequins I suppose that I would buy too many.

6. Draw some shapes inside this heart with areas that you know how to calculate and figure the sum of their areas.



We imagine that the sum of these interior shapes would be too small for the area of the heart.

7. Now that you have one area calculated that is too large for the actual heart area and one sum of areas that are too small for the actual heart area, decide on a reasonable approximation of the heart's interior area.

8. About how many sequin packages will I need for my 100 students?

9. How much will I have to pay for those sequins?



¹Sequins are metallic looking beveled discs that catch light and are used as sparkly adornments.

Example - Dorothy's red slippers were covered in sequins for the Wizard of Oz.

