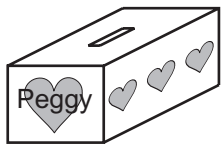# Valentine's Day
Problem Set

1. Sherry is making valentines for her classmates. Each valentine is one color (red, pink or white) and has one message written on it ("Be Mine," "Awesome," "Cutie" or "Luv Ya"). How many distinct valentines can she make?

2. Peggy must make a rectangular box in which she can put the valentines she receives. Her box has a bottom base that is 5 inches by 7 inches, and the box is 4 inches tall. What is the volume of this box, in cubic inches?

3. The math club has a fundraiser where students send carnations to other students for Valentine's Day. The students purchase white carnations for $1 each, pink carnations for $2 each and red carnations for $3 each from the math club. The math club purchases each carnation for 69 cents from the florist. If Tracy ordered 7 white, 2 pink and 1 red carnation, how much profit will the math club make off her order?

4. Jaime's sweetie went a little overboard and bought her a bag of candy hearts, a box of chocolates, a teddy bear, a bouquet of balloons and a card. He spent a total of $28 on these items. The balloon bouquet cost the same as the teddy bear, but it cost five times the amount of the card. The ratio of the price of the chocolates to the price of the card was 9:4, and the ratio of the candy hearts' price to the chocolates' price was 1:3. How much did the box of chocolates cost?

5. Diane's bag of candy hearts has 7 candy hearts in it. Three of them are green, two are pink and two are yellow. If she will pull each heart out one at a time and eat them as she pulls them out, what is the probability that she will select the two yellow hearts first? Express your answer as a common fraction.

6. On some graph paper, graph the following segments:

$y = x$ for $0 \leq x \leq 2$

$y = 2x - 2$ for $2 \leq x \leq 3$

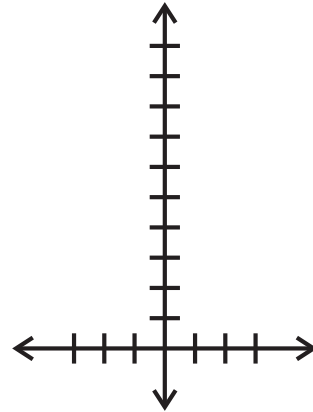$x = 3$ for $4 \leq y \leq 6$

$y = -x + 9$ for $2 \leq x \leq 3$

$y = 7$ for $1 \leq x \leq 2$

$y = x + 6$ for $0 \leq x \leq 1$

Now reflect each segment over the y-axis. What popular shape have you drawn?

7. What is the area, in square units, of the region you have enclosed with this Valentine's Day shape?