

Objective: Students will: (a) illustrate an algebraic concept--in a fun way--using a BOX. (b) apply an algebraic equation when measuring and drawing the size of the box. (c) use measuring and squaring tools to construct the box. (d) label the parts of the equation. (e) select 3 different colors to color-code the parts of the equation. (f) assemble the pizza box.

Name of Activity: Pizza Box (Gift box, box)--for grading purposes.

(Note: Your lesson plans will show that students are familiar with measurements and with the use of a ruler and square. The pizza box activity applies skills they have already mastered.)

Tools needed: white poster board, 12-inch ruler, square, pencil, erasers, crayons, paper-cutting scissors, glue (or stapler).

$$X^2 + 4xy + 4y^2 = 100$$

Given:  $x = 6$  and  $y = 2$

$$6 \times 6 + 4(6 \times 2) + 4(2 \times 2) = 100$$

$$36 + 48 + 16 = 100$$

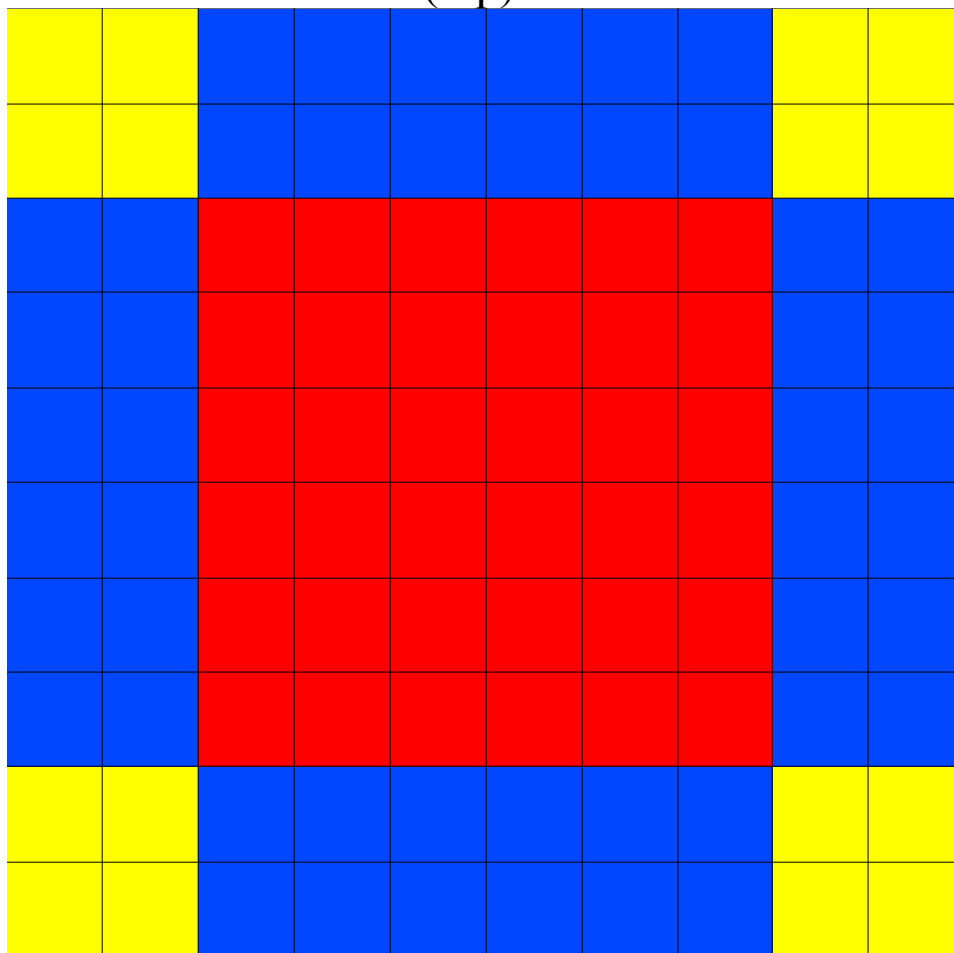
The bottom of the box is a 6-inch square ( $X^2$ ), the 4 sides of the box are 6 inches long x 2 inches high ( $4xy$ ), and the corners are 2-inch squares ( $4y^2$ ).

Show the “model” in colors.

The  $X^2$  is red. The  $4xy$ 's are blue. The  $4y^2$ 's are yellow.

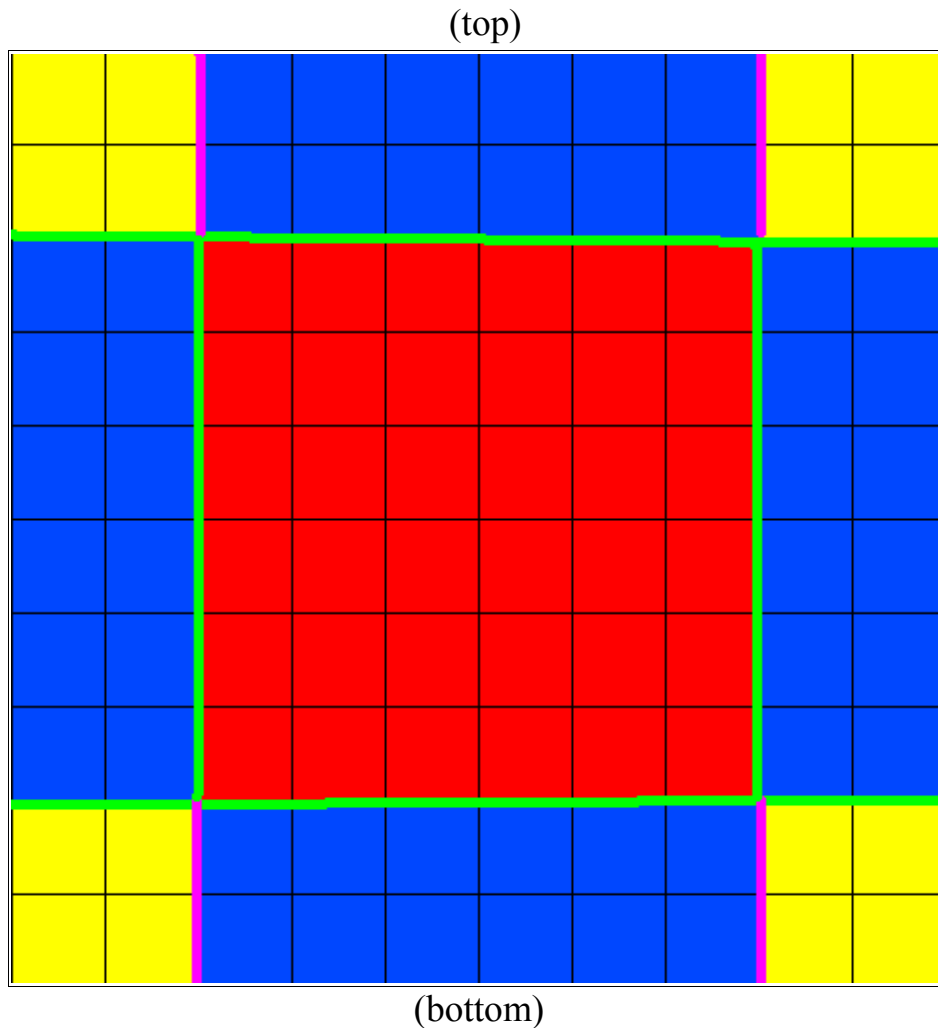
$$X^2 + 4xy + 4y^2 = 100$$

(top)



(bottom)

While unassembled, assign a top and a bottom to your equation.



To assemble: (1) Cut out the equation:  $X^2 + 4xy + 4y^2$  .

(2) Refer to pink lines (top and bottom). Cut along the pink lines. STOP! at the blue/yellow/red corners.

(3) Crease and fold along the green lines.

(4) Glue or staple the  $4y^2$  corners onto the sides.

Your equation is now a PIZZA Box. Congratulations!!

$$X^2 + 4xy + 4y^2 = 100$$

Given:  $x = 6$  and  $y = 2$

$$6 \times 6 + 4(6 \times 2) + 4(2 \times 2) = 100$$

$$36 + 48 + 16 = 100$$

1	2	1	2	3	4	5	6	1	2
3	4	7	8	9	10	11	12	3	4
1	2	1	2	3	4	5	6	1	2
3	4	7	8	9	10	11	12	3	4
5	6	13	14	15	16	17	18	5	6
7	8	19	20	21	22	23	24	7	8
9	10	25	26	27	28	29	30	9	10
11	12	31	32	33	34	35	36	11	12
1	2	1	2	3	4	5	6	1	2
3	4	7	8	9	10	11	12	3	4