

Get out your books and work on finishing 1.2 with your group.

1.2 I Rule!  
A Solidify Understanding Task



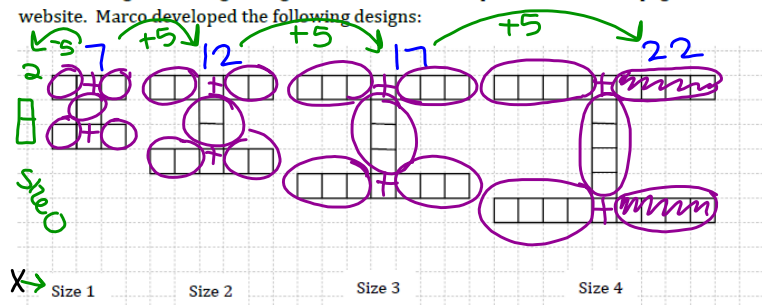
Marco has started a new blog about sports at Imagination High School (mascot: the fighting unicorns) that he has decided to call "I Site". He created a logo for the web site that looks like this:



SITE

linear  
 $y = mx + b$

He is working on creating the logo in various sizes to be placed on different pages on the website. Marco developed the following designs:



1. How many squares will be needed to create the size 100 logo?

502 squares  
 $5(100) + 2$

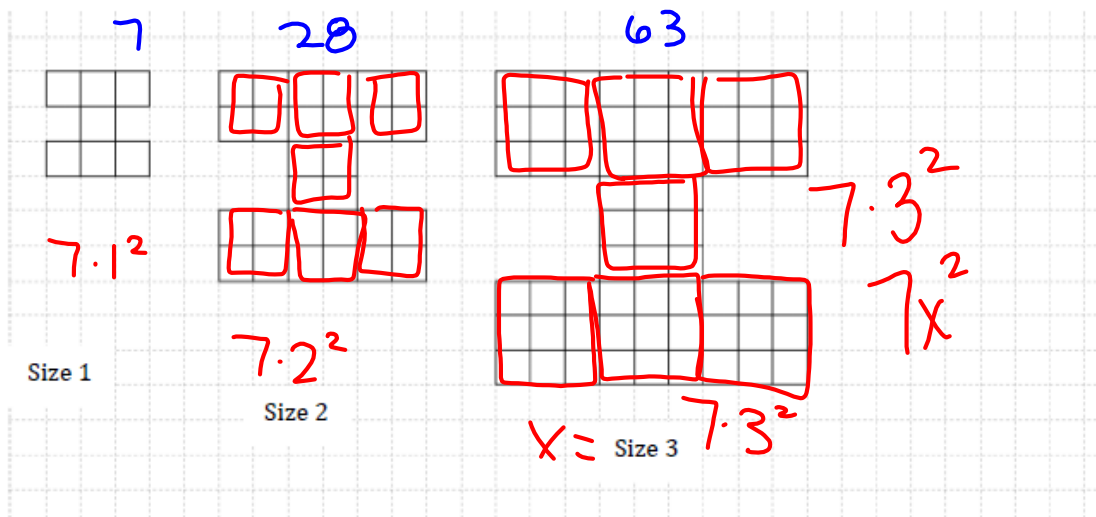
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2. Develop a mathematical model for the number of squares in the logo for size  $n$ .

$$y = 5x + 2$$

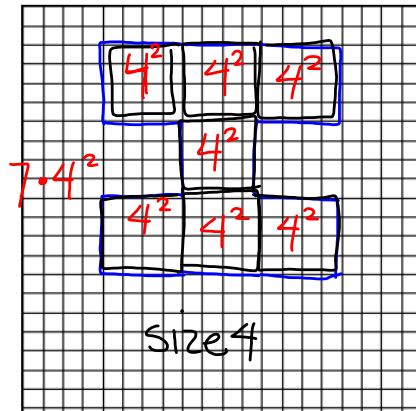
$$f(x) = 5x + 2$$

Marco decides to experiment with making his logo "blockier" so that it looks stronger. Here's what he came up with:



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3. Assuming that Marco continues with the pattern as it has begun, draw the next figure, size 4, and find the number of blocks in the figure.



Quadratic

X size	# blocks
1	7
2	28
3	63
4	112

+21  
 +35  
 +49  
 +14  
 +14

4. Develop a mathematical model for the number of blocks in a logo of size  $n$ .

$$f(n) = 7n^2$$

5. Compare the models that you developed for the first set of logos to the second set of logos. In what ways are they similar? In what ways are they different?

- Similar
- both are functions
  - I shape

- Different
- # of blocks
  - different # added
  - linear vs. quadratic

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Home Tools sec3\_mod1\_funinv... sec2\_mod1\_quadfu... x

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3a.  $(8x + 3) + (3x - 4)$       b.  $(8x + 3)(3x - 4)$

4a.  $(-5x + 2) + (7x - 13)$       b.  $(-5x + 2)(7x - 13)$

5a.  $(12x + 3) + (-4x + 3)$       b.  $(12x + 3)(-4x + 3)$

5.  $(x + 5)(x - 5)$

$12x \cdot -4x + 12x \cdot 3 + 3 \cdot -4x + 3 \cdot 3$   
 $-48x^2 + 36x - 12x + 9$   
 $-48x^2 + 24x + 9$

7. Compare your answers in 1 - 5 part a to your answers in #1 - #5 part b respectively. Look for a pattern in the answers. How are they different?

3. The answer to #6 is a different "shape" than the other part b answers, even though you were still multiplying. Explain how it is different from the other products. Try to explain why it is different. Think of 2 more examples of multiplication of two binomials that would do the same thing as #6.

9. Try adding the two binomials in #6.  $(x + 5) + (x - 5) =$  \_\_\_\_\_ Is this answer a different "shape" than the other part a answers? Explain.

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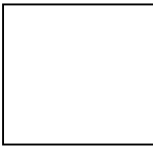
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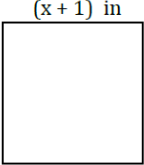
Before comparing area and perimeter

Calculate the *perimeter* and the *area* of the figures below. (Your answers will contain a variable.)

10. 


a. Perimeter:  $x+x+x+x = 4x$  cm

b. Area:  $x \cdot x = x^2$  cm<sup>2</sup>

11. 


a. Perimeter: \_\_\_\_\_

b. Area: \_\_\_\_\_

12. 

a. Perimeter: \_\_\_\_\_

b. Area: \_\_\_\_\_

13. 

a. Perimeter: \_\_\_\_\_

b. Area: \_\_\_\_\_

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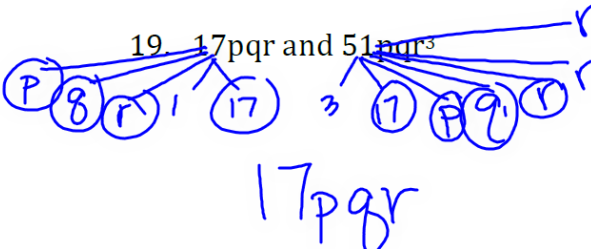
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Home Tools sec3\_mod1\_funinv... sec2\_mod1\_quadfu... x

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18.  $12x^5y$  and  $32x^6y$

19.  $17pqr$  and  $51pqr^3$



21.  $6x^2$ ,  $18x$ , and  $-12$

22.  $4x^2$  and  $9x$

24.  $16a^2b$ ,  $24ab$ , and  $16b$

25.  $49s^2t^2$  and  $36s^2t^2$

8.50 x 11.00 in

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The screenshot shows a PDF viewer window with the following content:

23.  $11x^2y^2$ ,  $33x^2y$ , and  $3xy^2$

24.  $16a^2b$ ,  $24ab$ , and  $16b$

Handwritten red annotations for problem 23:

- Tree diagram for  $11x^2y^2$ :  $11$  and  $x^2y^2$  (with  $x^2$  and  $y^2$  circled).
- Tree diagram for  $33x^2y$ :  $11$ ,  $3$ ,  $x^2$ , and  $y$  (with  $x^2$  and  $y$  circled).
- Tree diagram for  $3xy^2$ :  $3$ ,  $x$ , and  $y^2$  (with  $x$  and  $y^2$  circled).

Handwritten red conclusion for problem 23:

GCF:  $1xy = \boxed{xy}$

The PDF viewer interface includes a menu bar (File, Edit, View, Window, Help), a toolbar with icons for navigation and zooming, and a status bar at the bottom showing the page number (12 / 39) and dimensions (8.50 x 11.00 in).

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Questions on 1.2 HW?

Aug 30-7:46 AM