

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

1.2 I Rule!

A Solidify Understanding Task

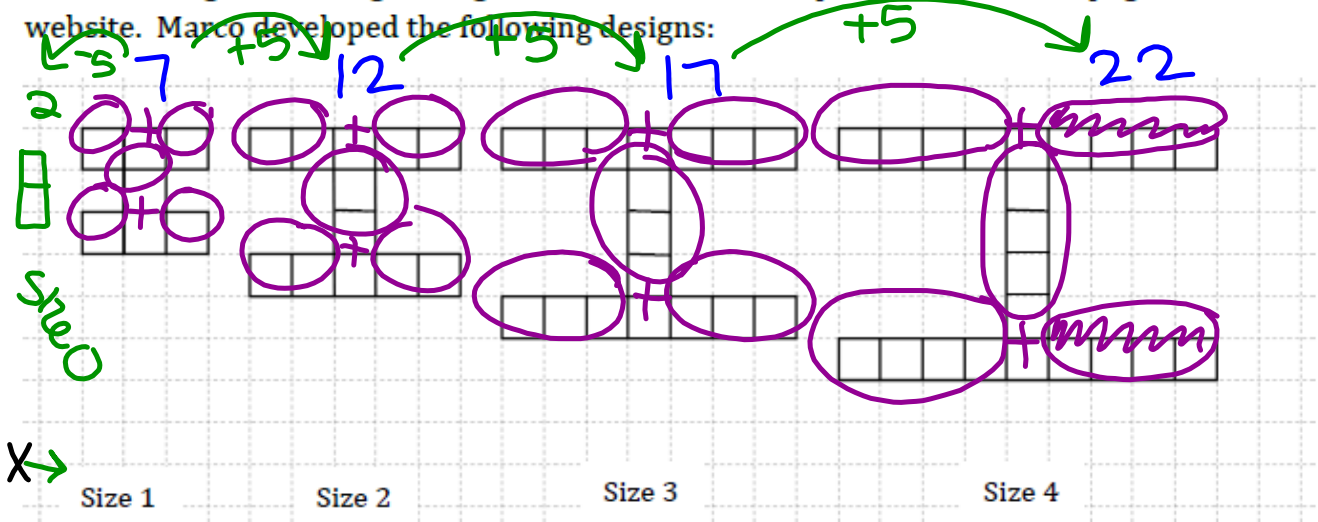


Marco has started a new blog about sports at Imagination High School (mascot: the fighting unicorns) that he has decided to call "I Site". He created a logo for the web site that looks like this:



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?

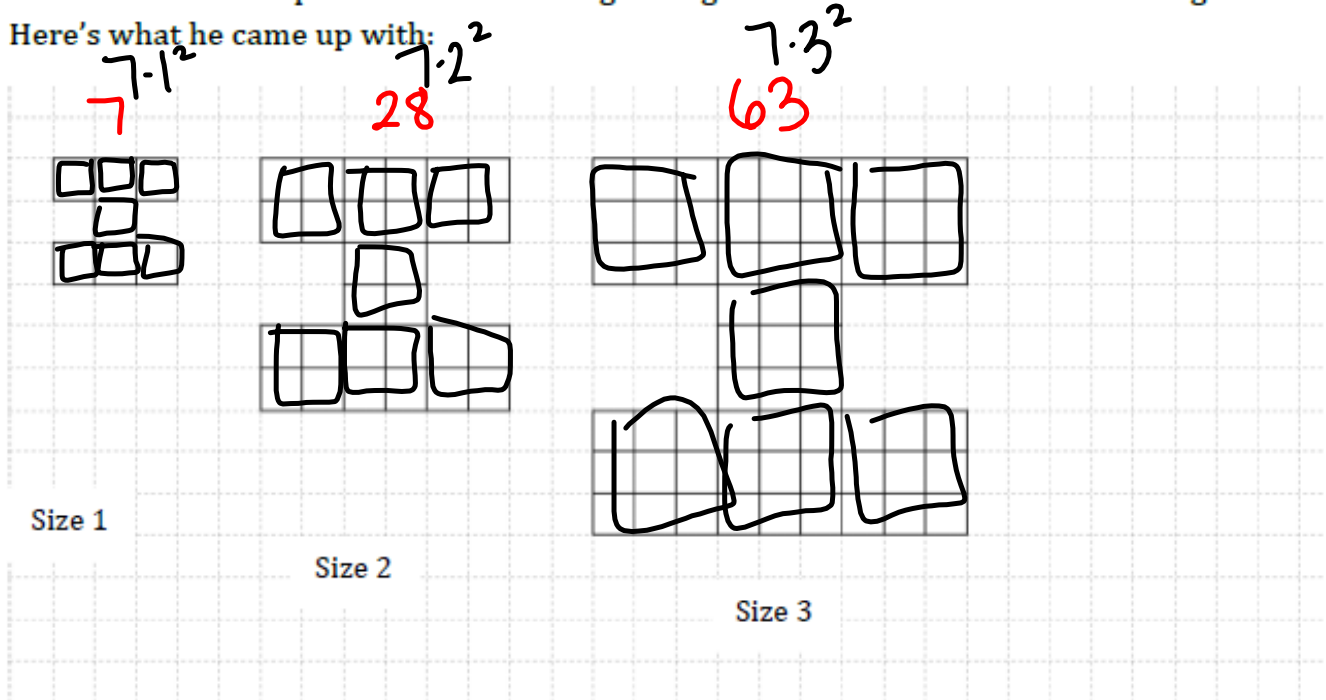
502 squares
 $5(100) + 2$

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

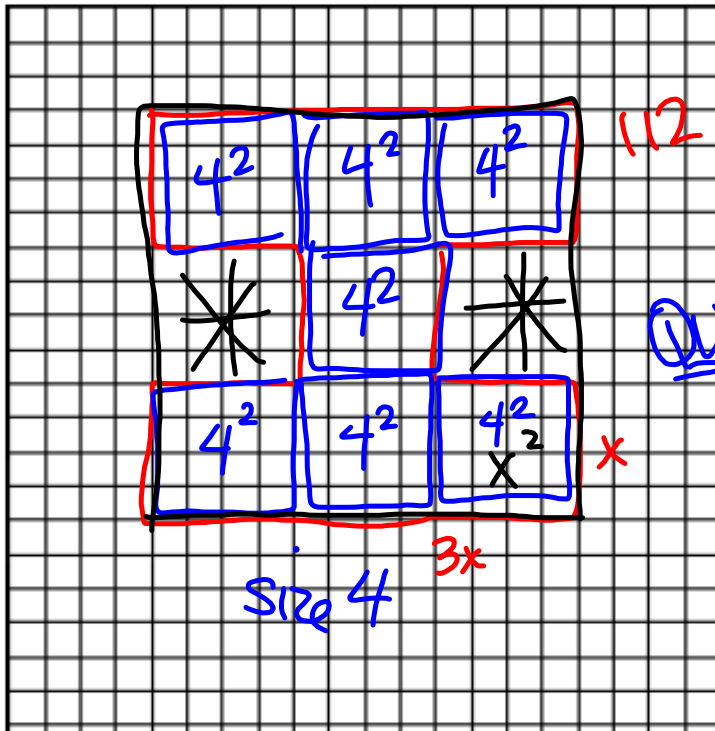
$$y = 5x + 2$$

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

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



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.



Size	# of blocks
1	7
2	28
3	63
4	112

$21 \rightarrow 14$
 $35 \rightarrow 14$
 $49 \rightarrow 14$
 1st diff
 2nd diff

$$(x \cdot 3x)^2 + x^2$$

$$6x^2 + x^2$$

$$7x^2$$

$$(3x)(3x) - 2x^2$$

$$9x^2 - 2x^2$$

$$7x^2$$

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 adding blocks
- I shape

Different

- Linear vs. quadratic

Questions on 1.2 HW?

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Simplify the following expressions

1a. $(2x + 7) + (5x + 3)$

2a. $(6x - 1) + (x - 10)$
 $7x - 11$

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

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

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

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

7. Compare your answers in 1 - 5 part a to your answers in #1 - #5 part b.

b. $(2x + 7)(5x + 3)$

b. $(6x - 1)(x - 10) =$
 $6x^2 - 60x - x + 10 =$
 ~~$(8x + 3)(3x - 4)$~~
 $(6x^2 - 61x + 10)$

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

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


8.50 x 11.00 in


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12. $(a + 5)$ ft
 $b + 3$

 a. Perimeter: $a + 5 + a + 5 + b + 3 + b + 3 = 2a + 2b + 16$ ft
 b. Area: $(a + 5)(b + 3) = ab + 3a + 5b + 15$ ft²

13. b mi

 a. Perimeter: _____
 b. Area: _____

14. $(x + 3)$ m

 a. Perimeter: _____
 b. Area: _____

15. $(x + 4)$ in

 a. Perimeter: _____
 b. Area: _____

16. Compare the perimeter to the area in each of problems (10-15).

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ind the GCF of the given numbers.

7. $15abc^2$ and $25a^3bc$

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

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

0. $7x^2$ and $21x$

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

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

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

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

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

Handwritten notes:

- $x \cdot x \cdot x \cdot x \cdot x \cdot y$ (circled)
- $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot y$ (circled)
- 12: 1, 12, 6, 2, 3, 4
- 32: 1, 32, 8, 4, 2, 16
- $4x^5y$

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QUIZ #1: Patterns

Determine if each pattern below is linear, exponential, or quadratic.

1)

x	$f(x)$
1	1
2	3
3	9
4	27

2)

x	$f(x)$
1	5
2	6
3	9
4	14

3)

x	$f(x)$
1	2
2	6
3	10
4	14