

NO QUIZ TODAY!

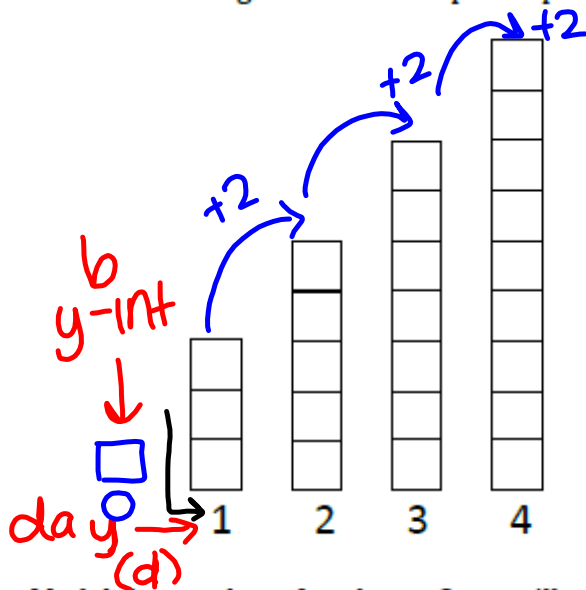
I will check your 1.2 Homework as soon as I get attendance taken.

Get out your books and begin lesson 1.3 on page 13.

1.3 Scott's Macho March

A Solidify Understanding Task

After looking in the mirror and feeling flabby, Scott decided that he really needs to get in shape. He joined a gym and added push-ups to his daily exercise routine. He started keeping track of the number of push-ups he completed each day in the bar graph below, with day one showing he completed three push-ups. After four days, Scott was certain he can continue this pattern of increasing the number of push-ups for at least a few months.



$$y = mx + b$$

\uparrow slope \uparrow y-int (x=0)

Linear (+2 every time)

of days = d or x
 # of push-ups = p(d) or y

1. Model the number of push-ups Scott will complete on any given day. Include both explicit and recursive equations.

Explicit: $f(x) = 2x + 1$ or $p(d) = 2d + 1$

Recursive: previous + 2
 or

$$f(x) = f(x-1) + 2$$

previous

Scott's gym is sponsoring a "Macho March" promotion. The goal of "Macho March" is to raise money for charity by doing push-ups. Scott has decided to participate and has sponsors that will donate money to the charity if he can do a total of at least 500 push-ups, and they will donate an additional \$10 for every 100 push-ups he can do beyond that.

2. Estimate the total number of push-ups that Scott will do in a month if he continues to increase the number of push-ups he does each day in the pattern shown above.

estimate

3. How many push-ups will Scott have done after a week?

4. Model the total number of push-ups that Scott has completed on any given day during "Macho March". Include both recursive and explicit equations.

$$x^2 + x + x$$

$$x(x+2)$$

day	push ups	total push ups
1	3	3
2	5	8
3	7	15
4	9	24

$1 \cdot 3$ $2 \cdot 4$ $3 \cdot 5$ $4 \cdot 6$

Recursive: previous + $2x + 1$

$f(x) = f(x-1) + 2x + 1$

Explicit: $x^2 + x + x = f(x) = x^2 + 2x$

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

$x^2 + (2x+1) - 1 = f(x) = x^2 + 2x$

$fig2 = fig1 + 2 \cdot 2 + 1$
 $fig2 = 3 + 5$
 $fig2 = 8$
 $fig3 = fig2 + 2 \cdot 3 + 1$
 $fig3 = 8 + 7$
 $fig3 = 15$

Quadratic
 x^2

5. Will Scott meet his goal and earn the donation for the charity? Will he get a bonus? If so, how much? Explain.

$$f(31) = (31)^2 + 2(31)$$

$$f(31) = 1023 \text{ push-ups}$$

yes

Homework/Classwork

Finish 1.3