Maya, Taylor, and Collin's Work

Taylor Maya Collin

2x-1

2(2)-1 4-1 =>

x^2-1

4·4 =16 -6 =10 x^2

Staircase Problem

The first four stages of a pattern are shown below.

2·2=4-1 =3

9-3=6

Stage 1 Stage 2 Stage 3 Stage 4

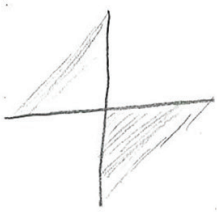
x^2 x^2-3 9-2·x

x^2+1 x^2+2 x^2+3 x^2+4

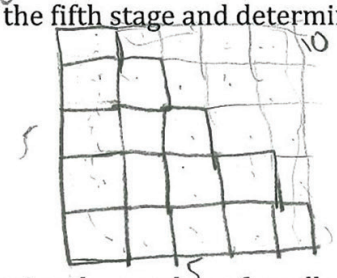
1. Determine the number of small squares in each of the first four stages.

Stage 1 = 1
Stage 2 = 3 (+3)
Stage 3 = 6 (+3)
Stage 4 = 10 (+4)

15 5 45 9
21 6 55 10
28 7
36 8



2. Draw the fifth stage and determine the number of small squares in that stage.



Stage 5 = 15

3. Determine the number of small squares in the tenth stage without drawing or building it. Stage 10 = 55

$x^2-3(0)$

4. What function describes the relationship between the total number of small squares and the stage number? Explain how you know.

height × base