

Teacher Notes

1.1.1 How can I work with my team to figure it out?

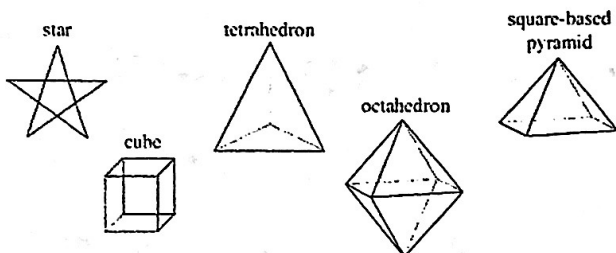


Solving a Function Puzzle in Teams

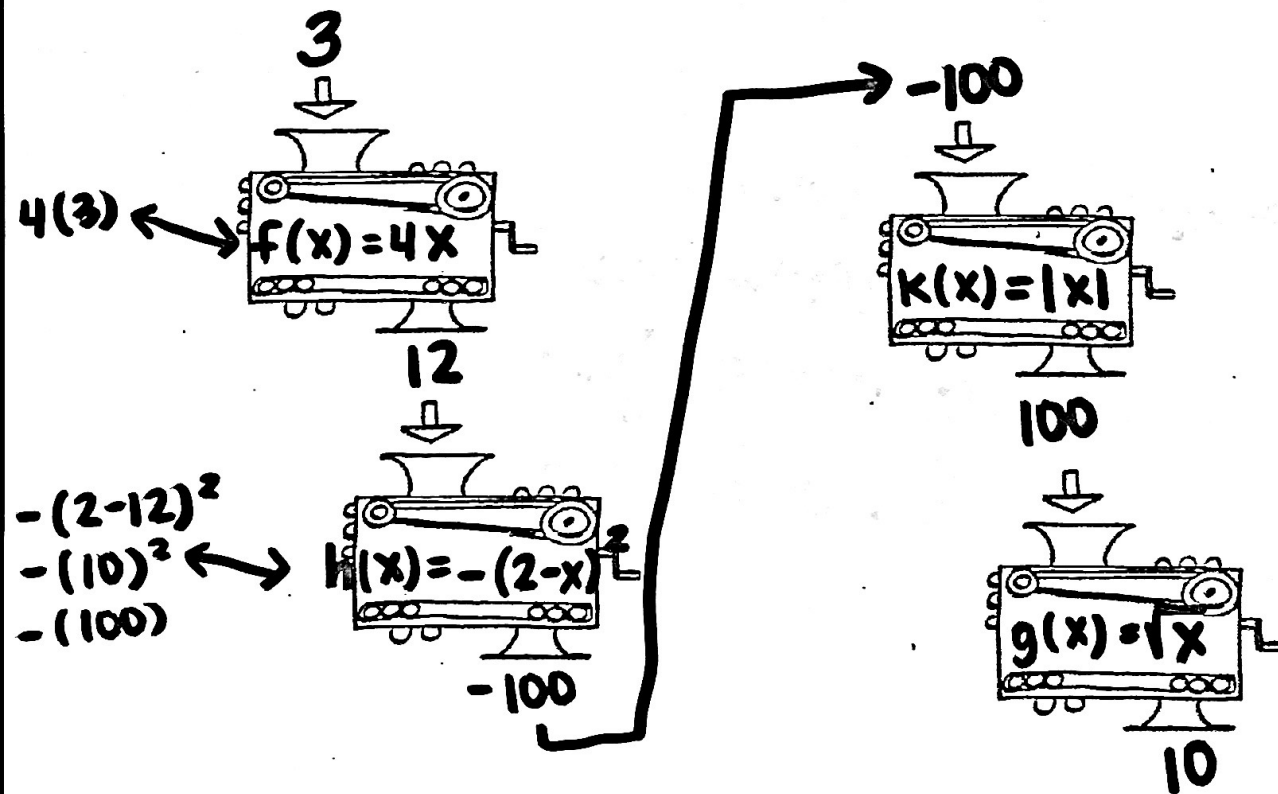
In previous courses, you have explored and proved properties of triangles, quadrilaterals, and circles, solved equations and systems of equations, and connected multiple representations of linear, exponential, and quadratic functions. In this course you will work with your classmates to deepen and extend your knowledge of algebraic and geometric relationships.

1-2. BUILDING WITH YARN

After your whole team is sitting together, introduce yourselves. Working effectively with your study team will be an important part of your learning process throughout this course. To help you work together in your team, each member of your team has a specific role listed on the team sort card, but every student is responsible for completing the lesson. Read about the team roles on the following page. Then work with your team to make each of the shapes you see below out of a single loop of yarn. You may make the shapes in any order you like. When you make one of the shapes successfully, call your teacher over to show off your accomplishment.



Function Machine Example:



1-3.

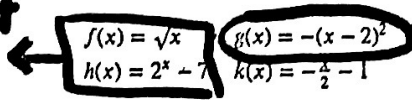
FUNCTION MACHINES

Obtain a set of four function machines:

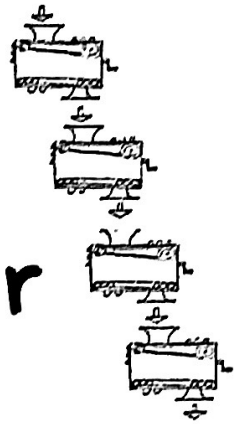
Your team's job is to stack the machines in a

particular order so that one machine's output becomes the next machine's input. As you work, discuss what you know about the kind of output each function produces to help you arrange the machines in the order that produces each result described below. The four functions are reprinted below.

Don't want a neg input



always a negative answer



a. In what order should you stack the machines so that when 6 is dropped into the first machine, and all four machines have had their effect, the last machine's output is 11?

b. What order will result in a final output of 131,065 when the initial input is 64?

Show your work here:

- a. correct order:
- ① $g(x) = -(x-2)^2$
 - ② $k(x) = -\frac{x}{2} - 1$
 - ③ $h(x) = 2^x - 7$
 - ④ $f(x) = \sqrt{x}$

- b. correct order:
- ① $f(x) = \sqrt{x}$
 - ② $g(x) = -(x-2)^2$
 - ③ $k(x) = -\frac{x}{2} - 1$
 - ④ $h(x) = 2^x - 7$