Name: _____   Surface Color: _____

Task Master: _____   Cynic: _____   Recorder: _____

The Surface

Working in small groups (3 or 4 people), solve as many of the problems below as possible. Try to resolve questions within the group before asking for help. Each group member should then write up solutions in their own words; please do not use this sheet for that purpose, but **please turn in this sheet as well.** *Show your work! Explain why your answers work.*

On your Mark: Put your surface $f(x, y)$ on the rectangular coordinate grid so that the Blue Dot is located above the point $(2, 3)$. Write down the coordinates of each of the three marked points:

Blue Dot: _____   Red Star: _____   Green Triangle: _____

Get Set: Starting at the Blue Dot, answer the following questions:

(1) Suppose y changes but x stays fixed at 2. Draw this function on your surface and here. Create a notation for your function, and label its largest and smallest values.

(2) Suppose x changes but y stays fixed at 3. Draw this function on your surface and here. Give your new function a name, and label its largest and smallest values.

Go:

(1) Draw each of $(x - 2)^2 + (y - 3)^2 = 4$ and $f\left((x - 2)^2 + (y - 3)^2 = 4\right)$. Describe these with words.

(2) Describe the effect of each of the following transformations on the function $f(x, y)$:

$2f(x, y)$	$-f(x, y)$	$f(x, y) - 3$
$f(x, y - 3)$	$f(x, 2y)$	$f(y, x)$