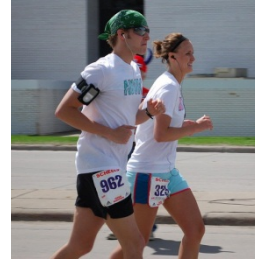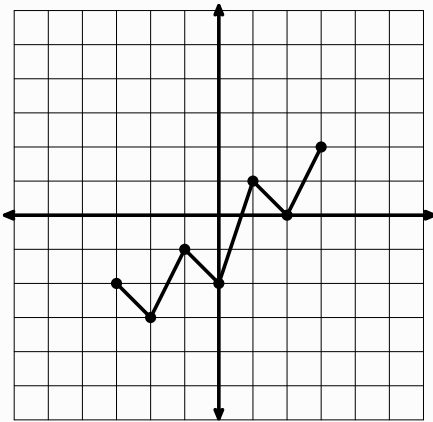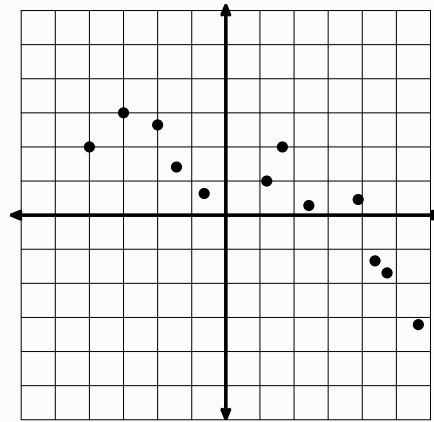## Ready, Set, Go!

Ready

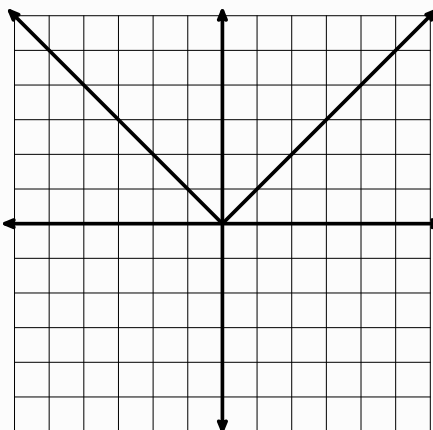Topic: Vertical transformations of graphs

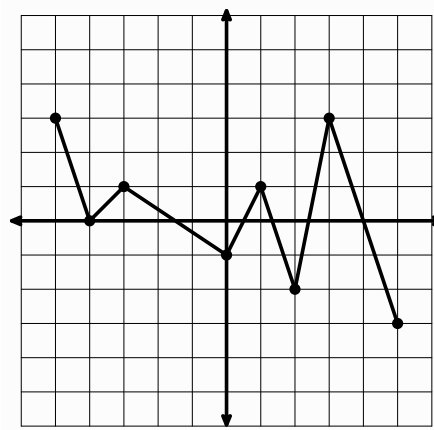1. Use the graph below to draw a new graph that is translated up 3 units.

2. Use the graph below to draw a new graph that is translated down 1 unit.

3. Use the graph below to draw a new graph that is translated down 4 units.

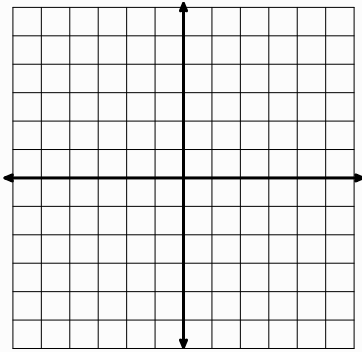4. Use the graph below to draw a new graph that is translated down 3 units.

Set

You are given the equation of *f(x)* and the transformation *g(x) = f(x) + k*. Graph both *f(x)* and *g(x)* *and* the linear equation for *g(x)* below the graph.
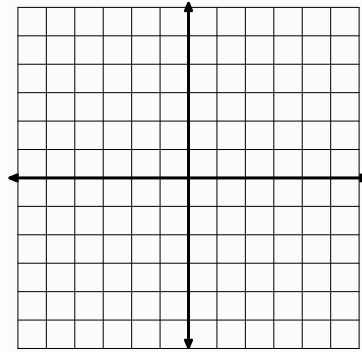
5. $f(x) = 2x - 4$

    $g(x) = f(x) + 3$

$g(x) = $ _____

6. $f(x) = 0.5x$
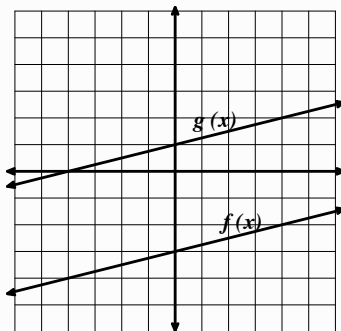
    $g(x) = f(x) - 3$

$g(x) = $ _____

Based on the given graph, write the equation of *g(x)* in the form of *g(x) = f(x) + k*. Then simplify the equation of *g(x)* into slope-intercept form. The equation of *f(x)* is given.

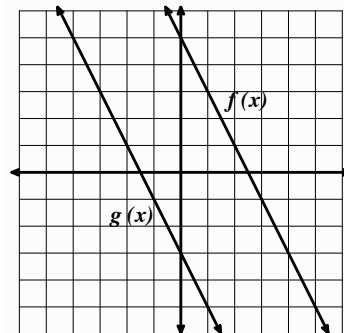7. $f(x) = \frac{1}{4}x - 3$

   a. $g(x) = $ _____
        Translation form

   b. $g(x) = $ _____
        Slope-Intercept form

8. $f(x) = -2x + 5$

   a. $g(x) = $ _____
        Translation form

   b. $g(x) = $ _____
        Slope-Intercept form

Go

9. Fernando and Mariah are training for a half marathon. The chart below describes their workout for the week just before the half marathon. If four laps are equal to one mile, and if there are 13.1 miles in a half marathon, do you think Mariah and Fernando are prepared for the event? Describe how you think each person will perform in the race. Include who you think will finish first and what each person's finish time will be. Use the data to inform your conclusions and to justify your answers.

Day of the week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Fernando: Distance (in laps)	34	45	52	28	49	36
Time per day (in minutes)	60	72	112	63	88	58
Mariah: Distance (in laps)	30	48	55	44	38	22
Time per day (in minutes)	59	75	119	82	70	45