4.4 Reflections of a Bike Lover
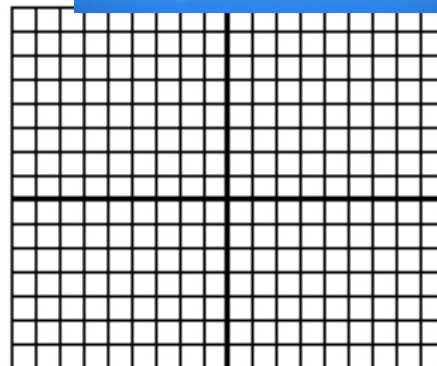*A Practice Understanding Task*
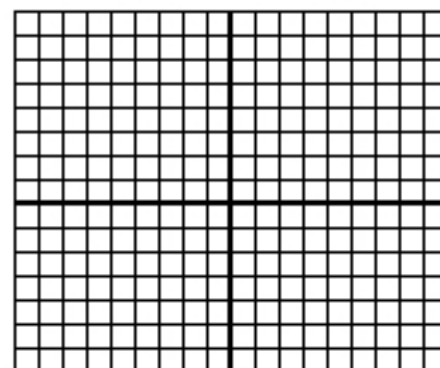
1. Graph the function $f(x) = x^2 - 4$

2. Graph $g(x) = |f(x)|$ on the same set of axes as *f(x)*.

3. Explain what happens graphically.

4. Write the piecewise function for $g(x)$.

5. Explain your process for creating this piecewise function.

6. Graph the function $f(x) = (x + 1)^2 - 9$

7. Graph $g(x) = |f(x)|$.

8. Explain what happens graphically?
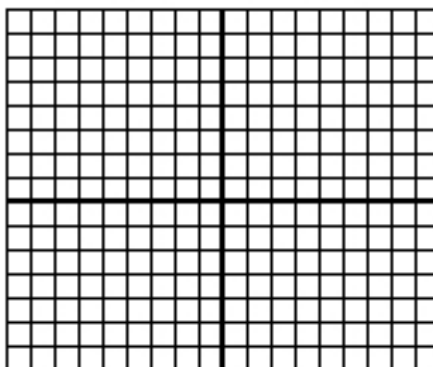
9. Write the piece-wise function for $g(x)$.

10. What do you have to think about when writing any absolute value piece-wise function?

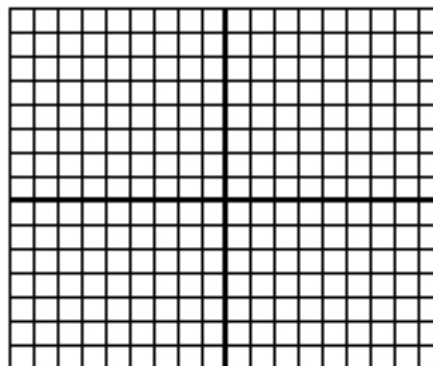Graph the following absolute value functions and write the corresponding piecewise functions for each.

11. $g(x) = |x^2 - 4| + 1$

Piecewise:

12. $g(x) = |(x + 2)^2 - 4| + 3$

Piecewise:

13. $g(x) = |(x - 3)^2 - 1| - 2$

Piecewise: