Advanced Algebra
Mr. Nechodom

Name: _____

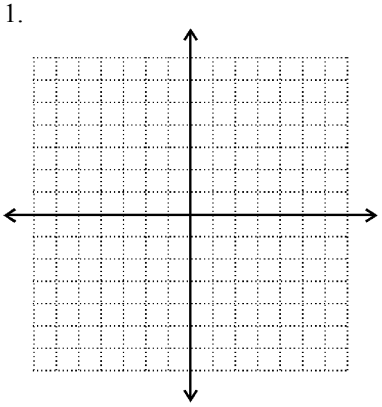
Practice on Piecewise-Linear Graphs

For problems 1 and 2, graph the piecewise-linear system of equations.

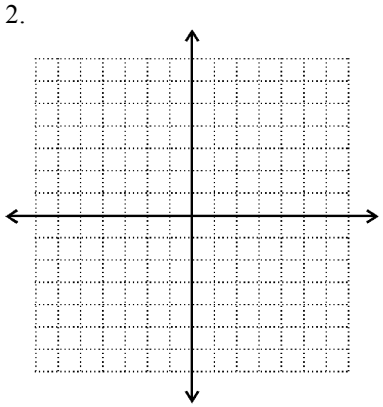
1. $\begin{cases} y = -3; x \le -3 \\ y = \frac{2}{3}x - 1; -3 < x \le 3 \\ y = 3; x > 3 \end{cases}$

2. $\begin{cases} y = 2x + 6; \ x < -4 \\ y = \frac{1}{4}x; \ -4 \le x \le 0 \\ y = 2; \ x > 0 \end{cases}$

1.



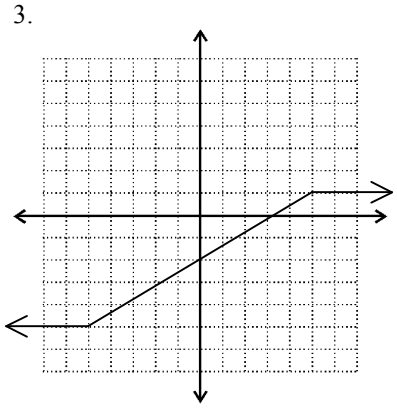
2.



3. Write a system of equations for the piecewise-linear graph shown to the right.

$\begin{cases} \\ \\ \\ \end{cases}$

3.



4. A roofing company charges a flat rate of $300 for the first 10 hours of labor. For every hour past 10 hours, they charge $25 per hour.

   a) Find the cost for 5, 10, 15, 20 and 30 hours of labor.

   b) On graph paper, carefully graph the cost of roofing labor for 0 to 30 hours.

   c) Write a system of equations to describe the graph in part b).

Challenge Problem

Walking at 2 meters per hour, a turtle leaves his home and walks north for three hours. He then turns to the east and walks for 30 minutes, then turns south and walks for 2 hours. Make a graph of the turtle's absolute distance from his home for the entire trip. (Absolute distance means his actual distance from his home, not the distance he has traveled so far.)