

1. You want to make some fertilizer to spray on your garden. Right now all you have is some fertilizer that is 8% Nitrogen and some that is 20% Nitrogen. You want to make up 6 quarts of fertilizer that is 12% Nitrogen. How many quarts of each type of fertilizer do you need to mix together to end up with the desired 6 quarts of a 12% Nitrogen fertilizer?

2. You and a friend are taking a canoe trip from your dock on the river to the water fall that is 6 miles away. Your trip upstream to get to the falls in the morning takes 4 hours. Your trip downstream to return to your dock in the afternoon takes 2 hours. Write and solve a system of equations to find the speed of the current in the river and the speed at which you can paddle the canoe.

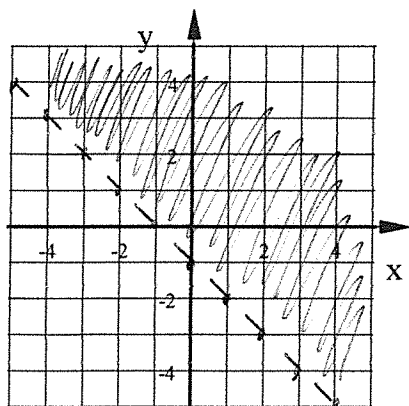
3. You want to make a drink that is 10% sugar but only have drinks that are 8% sugar and 18% sugar. How many liters of each should you mix together in order to end up with 25 liters of the 10% drink?

4. You fly in your plane roundtrip to your cabin which is 540 miles away. The trip to your cabin takes 3.6 hours because you must fly into a headwind. The return trip takes only 2.7 hours because you fly with a tailwind. Write and solve a system of equations to find the speed of the plane and the speed of the wind.

Graph each inequality on the xy-plane. Shade the solution region with a colored pencil or a highlighter.

5.  $y < -2x + 4$       6.  $y \geq -2$       7.  $x < -3$   
 8.  $y > \frac{1}{3}x$       9.  $12x + 9y \geq 36$       10.  $20x - 12y \leq 60$

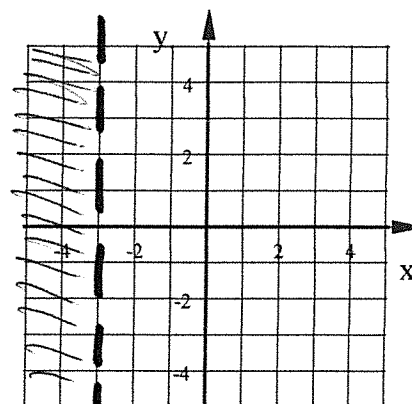
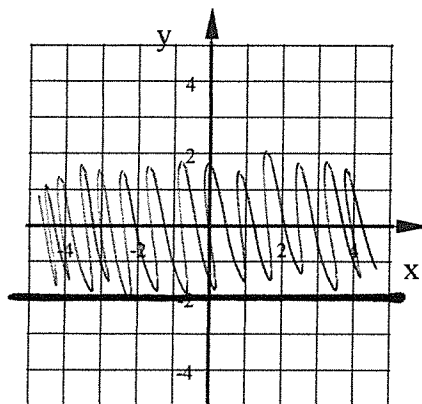
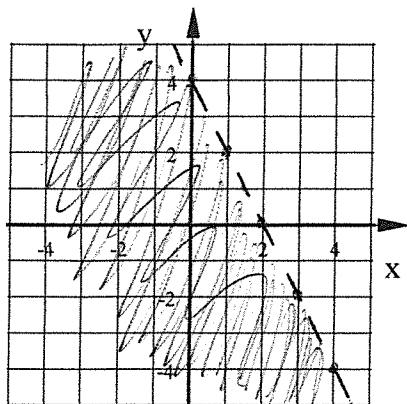
11. Write the inequality that is shown in the graph below.



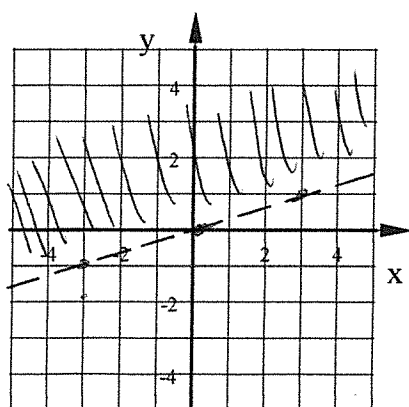
Graph this system of inequalities. Shade the solution region with a highlighter or a colored pencil.

12.  $y \leq -\frac{1}{4}x - 1$       13.  $y > 2x$   
 $6x - 8y > 24$        $10x + 5y \leq 20$

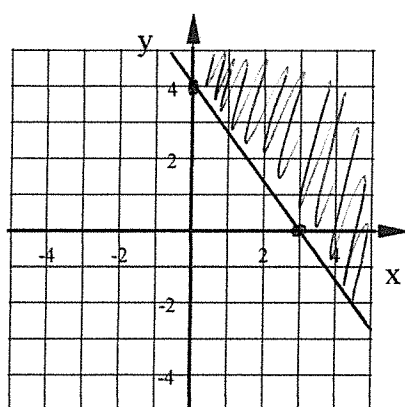
1. 4 quarts of the 8% Nitrogen fertilizer and 2 quarts of the 20% Nitrogen fertilizer.
2. Paddling speed = 2.25 mph Current speed = 0.75 mph
3. 20 liters of 8% and 5 liters of 18%
4. Plane speed = 175 mph. Wind speed = 25 mph.
- 5.
- 6.
- 7.



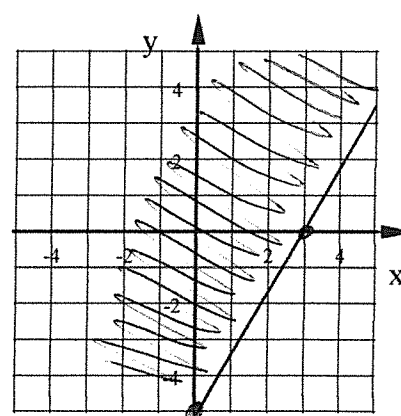
8.



9.

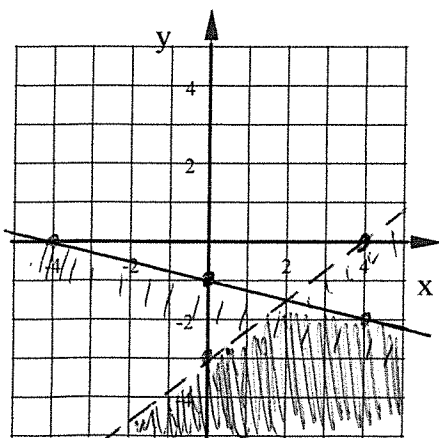


10.



11.  $y > -x - 1$

12.



13.

