Section 3.4: Linear Inequalities and Their Graphs
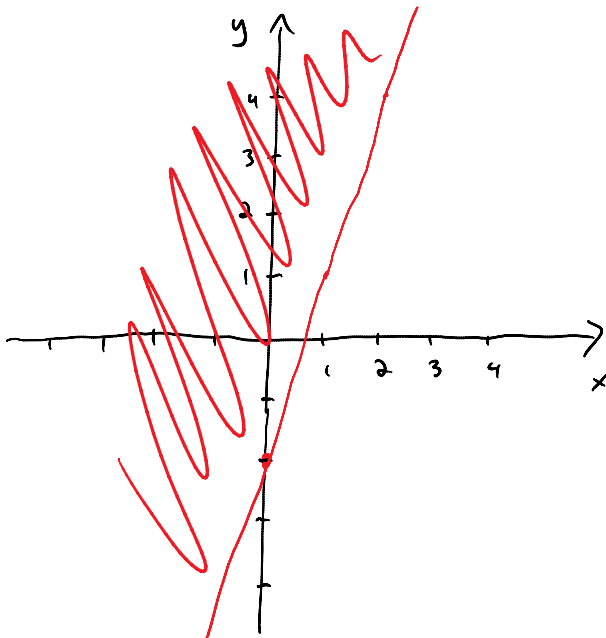
linear inequality:

$$Ax + By \; \boxed{\leq} \; C$$

↑
could also be $> \; \geq \; <$

example:

graph the inequality $y \geq 3x - 2$
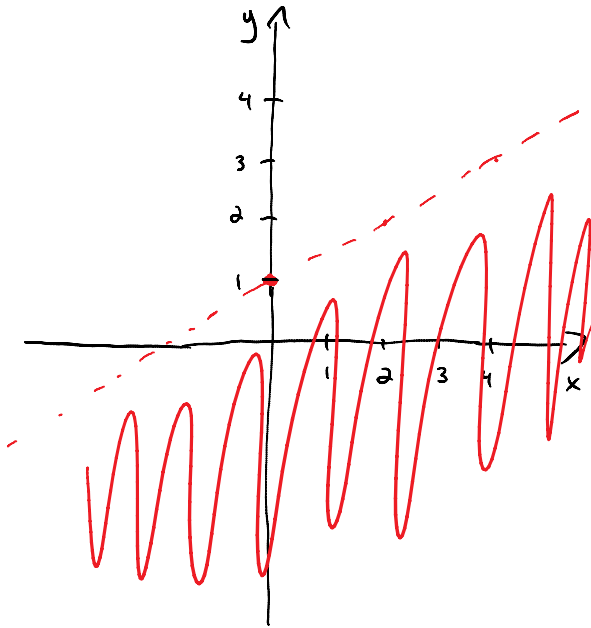

test-point method:
now, take a test point $(0,0)$ and plug into inequality:

$$0 \geq -2 \quad \text{true}$$

so, shade the side of the line containing the test point

note: if we were to graph $y > 3x - 2$ (no "equals to"), the points on the line aren't included in the solution, so we'd graph a dotted line instead

example: sketch the grph   of $y < \frac{1}{2}x + 1$

test point (0,0)

$0 < 1$

true

if you prefer, can instead of "test point method" use:

for $y > mx + b$,   shade above the line
$y < mx + b$,   "   below   "