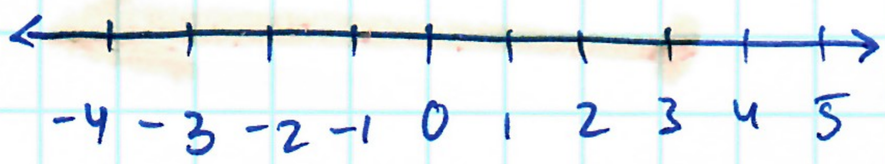
MTH 5 Feb. 10th meeting.

1 Set - builder notation

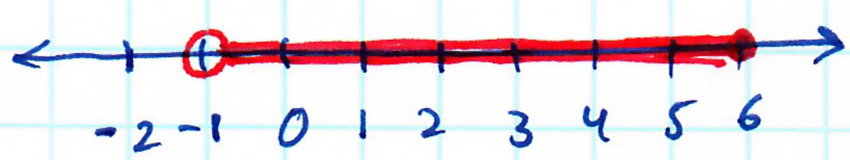
#1 Given the figures below, how would you put those interals in set - builder notation?

(a)



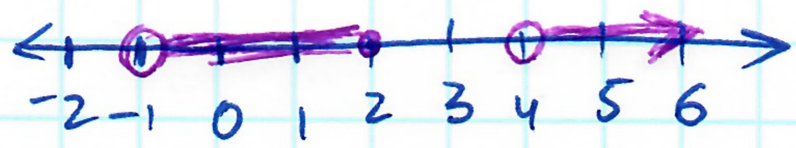
Answer: $\{x \mid x \leq 3\}$

(b)



Answer: $\{x \mid -1 < x \leq 6\}$

(c)

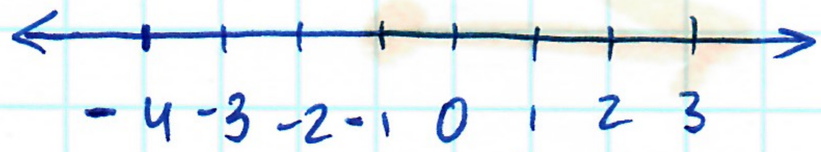


Answer: $\{x \mid -1 < x \leq 2 \cup x > 4\}$

#2 Interval notation

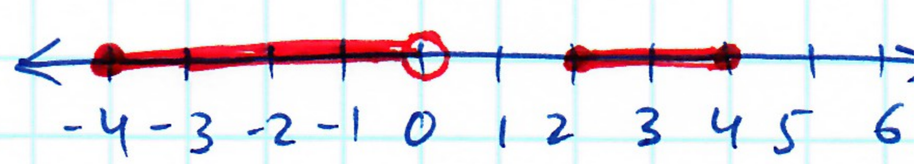
given the figures below, how would you put those intervals in interval notations?

(a)



Answer: $[-1, \infty)$

(b)



Answer: $[-4, 0) \cup [2, 4]$

(3) Incorporating all together: solve given inequality, graph the solution set and give answer in both notations.

(b) $-1.43x - 12 < 1.57x - 15 \leq -1.43x + 18$

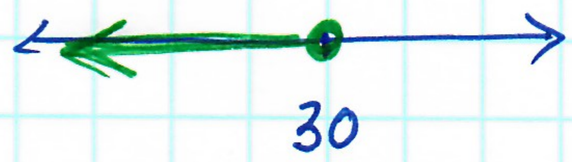
(a) $\frac{x}{6} + \frac{x}{5} \leq 11$

(a) LCD $= 30$

$$\cancel{30}^{5} \cdot \frac{x}{\cancel{6}_{1}} + \cancel{30}^{6} \cdot \frac{x}{\cancel{5}_{1}} \leq 11 \cdot 30$$

$$\frac{11x}{11} \leq \frac{330}{11} \qquad \boxed{x \leq 30}$$

Answer:



$(-\infty, 30]$ in interval notation

$\{x \mid x \leq 30\}$ in set-builder notation.

(b) $-1.43x - 12 < 1.57x - 15 \leq -1.43x + 18$

$+1.43x \qquad +1.43x \qquad +1.43x$

$-12 < 3x - 15 \leq 18$

$+15 \qquad +15 \qquad +15$

$$\frac{3}{3} < \frac{3x}{3} \leq \frac{33}{3}$$

$$\boxed{1 < x \leq 11}$$

Answer: $\{x \mid 1 < x \leq 11\}$ in set-builder notation

$(1, 11]$ in interval notation