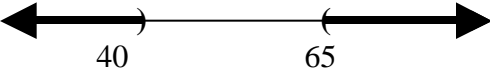


## CHAPTER 12

### Inequalities

#### 12.1 Inequalities in the Number Line

- 1)
- a) Any real number between  $-2$  and  $6$  (inclusive) is a solution.
  - b) Yes
- 3)
- a) Answers will vary
  - b)  $\{x : x > 200 \text{ and } x \leq 400\}$   
You could also write the solution set this way:  $\{x : 200 < x \leq 400\}$ .
  - c)  $(200, 400]$
- 5)
- a) 
  - b)  $\{x \mid x < 40 \text{ or } x > 65\}$
  - c)  $[0, 40) \cup (65, \infty)$
- 7)
- a)  $\{x : x \text{ is a real number}\}$
  - b)  $\{x : -5 < x \leq 10\}$
- 9)  $x < 9$
- 11)  $x \leq -\frac{3}{8}$
- 13) Solution Set:  $\{x \mid x < \frac{8}{3}\}$
- 15) Let  $l$  and  $w$  denote the length and width (in meters) of the rectangle, respectively.
- a)  $P = 2l + 80$
  - b)  $2l + 80 \leq 200$  and  $2l + 80 \geq 300$
  - c) The rectangle's length can be no less than  $60$  m and no more than  $110$  m.
- 17)  $x = 2$       ← Ignore negative root for variation
- 19)  $(-3, -\frac{15}{7})$