

Modeling with Inequalities


WB pp. 79 - 80

p 80

$$\textcircled{1} \quad 2(x+9) \leq 3x+15$$

$$\begin{array}{r} 2x+18 \leq 3x+15 \\ -2x \quad -2x \end{array}$$

$$\begin{array}{r} 18 \leq x+15 \\ -15 \quad -15 \end{array}$$

$$3 \leq x$$


A number line with a solid dot at 3 and an arrow pointing to the right. The number 3 is written below the dot.

$$x \geq 3$$

$$\textcircled{2} \quad x+x+1+x+2 > 20$$

$$3x+3 > 20$$

$$3x > 17$$

$$x > \frac{17}{3}$$

$$x > 5\frac{2}{3}$$



A number line with an open circle at 5 2/3 and an arrow pointing to the right. The number 5 2/3 is written below the circle.

6 is the smallest

$$\textcircled{3} \quad \frac{-10x}{-10} \leq \frac{90}{-10}$$

$$x \geq -9$$



A number line with a solid dot at -9 and an arrow pointing to the right. The number -9 is written below the dot.

$$\textcircled{4} \quad 3.3 + 5.7 = 9$$

$$5.7 - 3.3 = 2.4$$

$$2.4 < x < 9$$

a. 3, 4, 5, 6, 7, 8

b. $9+3=12$
 $9+8=17$

(9)

$$15 p \rightarrow x$$

$$30 n \rightarrow 2x$$

$$20 d \rightarrow \frac{2}{3}(2x)$$

$$\frac{1050}{1} \cdot \frac{2}{3} = 20$$

$$.01x + .05(2x) \geq 3.65$$

$$+ .10\left(\frac{4}{3}x\right)$$

$$.01x + .10x + \frac{.40}{3}x \geq 3.65$$

$$\frac{300}{73} \cdot \frac{73}{300} x \geq 3.65 \cdot \frac{300}{73}$$

$$x \geq 15$$

$$(14) .20x + 3500 \geq 4800$$

$$\frac{.20x}{.20} \geq \frac{1300}{.20}$$

$$x \geq 6500$$

HW
28

$$x \leq -6$$

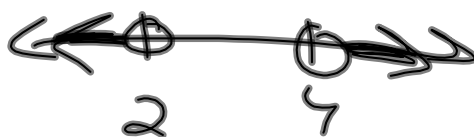


$$x < -11$$




$$32 \quad (2x > 8) \vee (-3x > -6)$$

$$x > 4 \vee x < 2$$



/

$$y \leq x$$

$$x \geq 4$$


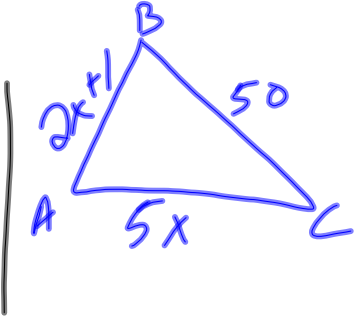
5, 8, 10, 20
WB PP 80-81

P 80-81
#s 5, 8, 10, 20

⑤ $7 < x < 17$
 $x > 7$

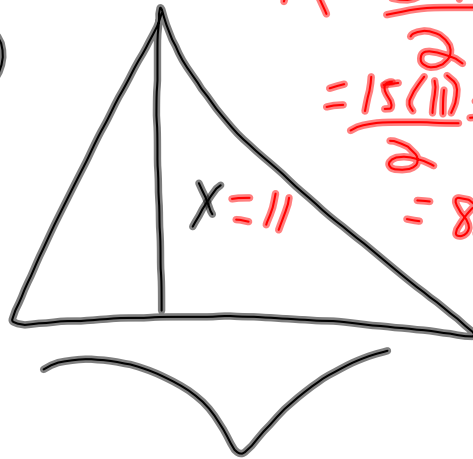
If \overline{BC} is largest
 $2x+1+5x > 50$
 $x > 7$

If \overline{AC}
 $2x+1+50 > 5x$
 $2x+51 > 5x$
 $-2x$
 $51 > 3x$
 $17 > x$



10, 18, ?
 $10+18=28$
 $18-10=8$
 $8 < x < 28$

⑧



$$x + 4$$

$$11 + 4 = 15$$

$$A = \frac{bh}{2}$$

$$= \frac{15(11)}{2} = \frac{165}{2}$$

$$= 82.5$$

$$x + x + 4 \geq 25$$

$$2x \geq 21$$

$$x \geq 10.5$$

⑪

⑩

171.11

⑪

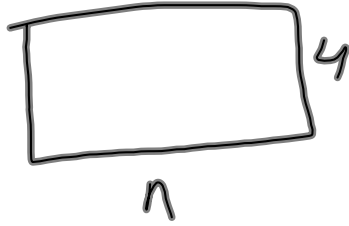
$$-185 - 0.25a + 2.5a \geq 200$$

$$2.50a - (185 + 0.25a) \geq 200$$

$$2.25a \geq 385$$

$$a \geq 171.11$$

(20)



$$\frac{18}{4} \leq \frac{4n}{4} \leq \frac{29}{4}$$

$$4.5 \leq n \leq 7.25$$

(43)

$$d \rightarrow 2x + 110 \quad \overset{b}{\underbrace{x}} + \overset{d}{\underbrace{110 + 2x}} \geq 194$$

$$b \rightarrow x$$

$$3x + 110 \geq 194$$

$$\frac{3x}{3} \geq \frac{84}{3}$$

$$\boxed{x \geq 28}$$

