

4.4a Two-Step Inequalities

Solve two-step inequalities the same way as you solve two-step equations

Ex. 1 $5x - 4 > 11$
 $+4$ $+4$
 ~~$5x$~~ $>$ ~~11~~ $+4$
 $5x$ $>$ 15
 $\frac{5x}{5}$ $>$ $\frac{15}{5}$
 $x > 3$

Check

$2 > 3$ F
 $3 > 3$ F
 $4 > 3$ T
 $5 > 3$ T

Ex. 2 $\frac{b}{-3} + 4 < 13$
 -4 -4
 ~~$\frac{b}{-3}$~~ $<$ ~~13~~ -4
 $\frac{b}{-3}$ $<$ $9 - 3$
 $\frac{b}{-3}$ $<$ 6
 $\frac{b}{-3} \cdot (-3)$ $<$ $6 \cdot (-3)$
 $b > -18$

Check

$-28 > -27$ F
 $-27 > -27$ F
 $-26 > -27$ T
 $-25 > -27$ T

Ex. 3 $-10 \leq 3p + 2$
 -2 -2
 ~~-10~~ \leq ~~$3p + 2$~~ -2
 -12 \leq $3p$
 $\frac{-12}{3}$ \leq $\frac{3p}{3}$
 $-4 \leq p$

Check

$-4 \leq -5$ F
 $-4 \leq -4$ T
 $-4 \leq -3$ T
 $-4 \leq -2$ T

Ex. 4 $-6y - 7 > 5$
 $+7$ $+7$
 ~~$-6y$~~ $>$ ~~5~~ $+7$
 $-6y$ $>$ 12
 $\frac{-6y}{-6}$ $>$ $\frac{12}{-6}$
 $y < -2$ (reverse)

Check

$-4 < -2$ T
 $-3 < -2$ T
 $-2 < -2$ F
 $-1 < -2$ F

HW: p. 150 #3-21 odd