Mathematics9 Date _____

Unit 8 Solving Equations & Inequalities
8.6 Solving Single-Step Inequalities (text 9.2)

Consider the inequality $-3 < 6$. How do mathematical operations [+, −, ×, ÷] affect the inequality?

$-3 < 6$ $+3 \quad +3$ $0 < 9$

$-3 < 6$ $-7 \quad -7$ $-10 < -1$

$6\times\ -3 < 6\ \times 6$ $-18 < 36$

$-3 < 6$ $\div 3 \quad \div 3$ $-1 < 2$

$-3\times -3 < 6 \cdot -3$ $9 > -18$

$-3 < 6$ $\div -1 \quad \div -1$ $3 > -6$

Conclusion: When we multiply or divide by a negative number the inequality reverses (flips).

Ex. Solve, show solution algebraically and graphically:

a) $x - 3 \geq 2$ $+3 \quad +3$ $x \geq 5$

b) $-2x < 8$ $\div -2 \quad \div -2$ $x > -4$

c) $3(-5) > \frac{x}{3}(3)$ $-15 > x$ OR $x < -15$

d) $4x \leq 10$ $\div 4 \quad \div 4$ $x \leq 5/2$

e) $(\frac{x}{-8})(-8) < (-24)(-8)$ $x > 192$

f) $5 - x > 8$ $-5 \quad -5$ $-x > 3$ $\div -1 \quad \div -1$ $x < -3$

$-x = 3$

$x = -3$

Ex. A games store has a sale offering all games for $12.50 each. If you only had $80, how many games could you buy?

Let g = # games

money spend ≤ money have

$12.5g \leq 80$

$\div 12.5 \quad \div 12.5$

$g \leq 6.4$

You can buy upto a max of 6 games

Practice: pg. 357/ # 5 – 7, 14, 15, 18, 19, 22