# Warm Up

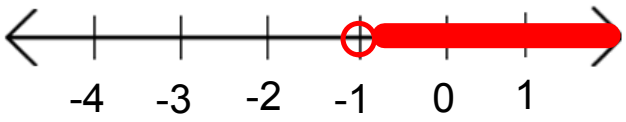
Match each inequality with the graph of its solution: Show all work

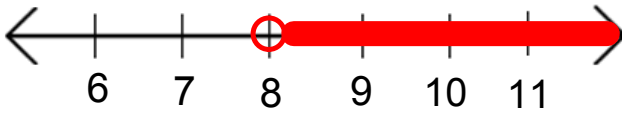
a) $x - 3 > 5$

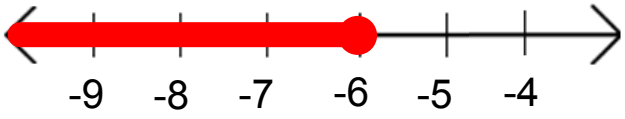
b) $-10 \geq -4 + p$

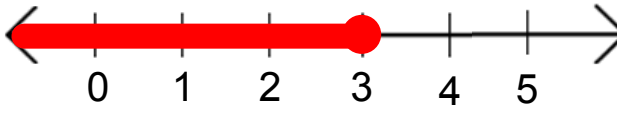
c) $7 < r + 8$

d) $-5 + w \leq -2$



Answers:

# Warm Up

Match each inequality with the graph of its solution: Show all work

a) $x - 3 > 5$ (+3, +3)

$x > 8$

b) $-10 \geq -4 + p$ (+4, +4)

$-6 \geq p$

$p \leq -6$

c) $7 < r + 8$ (-8, -8)

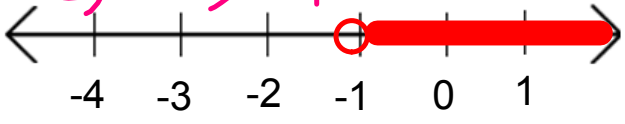
$-1 < r$

$r > -1$

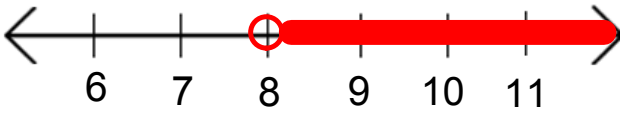
d) $-5 + w \leq -2$ (+5, +5)

$w \leq 3$

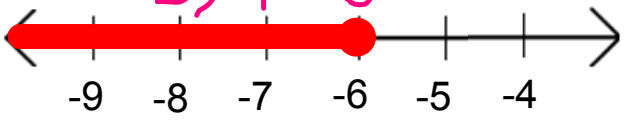
c) $r > -1$



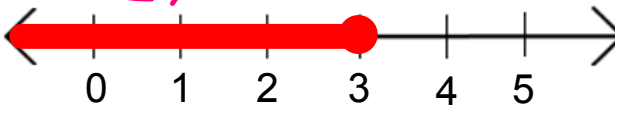

a) $x > 8$




b) $p \leq -6$

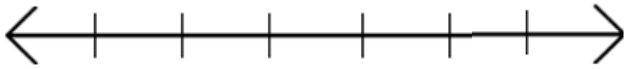



d) $w \leq 3$



Solve the inequality

$$\frac{x}{2} + 3 \leq \frac{2x}{3} - 4$$



Answers:

$$\frac{x}{2}^{(6)} + 3^{(6)} \leq \frac{2}{3}x^{(6)} - 4^{(6)}$$

$3x + 18 \leq 4x - 24$

$-3x \quad -3x$

$3x + 18 \leq 4x - 24$

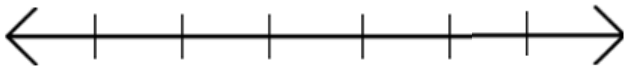
$18 \leq x - 24$

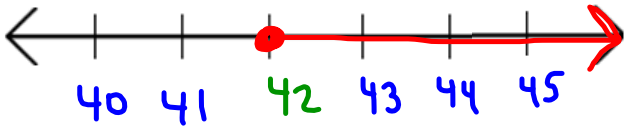
$+24 \quad +24$

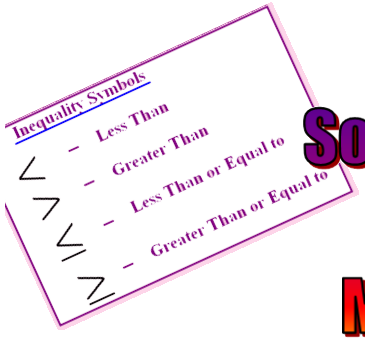
$18 \leq x - 24$

$42 \leq x$

$x \geq 42$

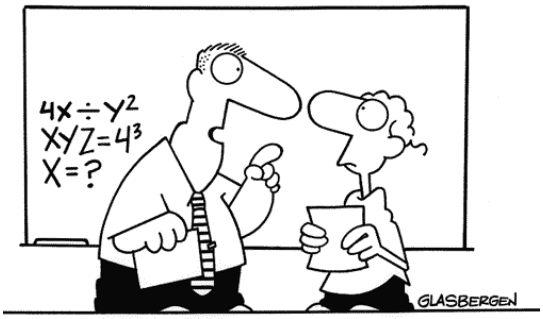







# Section 6.5
# Solving Linear Inequalities by Using Multiplication & Division






"Algebra class will be important to you later in life because there's going to be a test a few days from now."

Let's Have A Look ....

Place a > or < sign that makes the statement true.

erase

5 ▭ -7

Now divide each side by (-1) and see what happens

$$\frac{5}{(-1)} \quad < \quad \frac{7}{(-1)}$$

$$-5 \quad \not< \quad -7$$

No longer true so must fix the inequality sign

$$-5 \quad > \quad -7$$

Let's Have A Look ....

Place a > or < sign that makes the statement true.

erase

-6 ▢ -18

Now lets divide each side by (-6)

$$\frac{-6}{(-6)} > \frac{-18}{(-6)}$$

$$1 \not> 3$$

No longer true so must fix the inequality sign

$$1 < 3$$

Copy Down

# Properties of Inequalities

1) When you multiply or divide a inequality by a positive number the inequality remains the same.

Example) $5 > -1$

$5(3) > (-1)(3)$

$15 > -3$

2) When you multiply or divide a inequality by a "negative number" the inequality must be reversed(switched) in order to remain true.

$12 > -10$

$12 \div (-2) \quad -10 \div (-2)$

Switch inequality since divided by a negative

$12 \div (-2) < -10 \div (-2)$

FIX

$-6 < 5$

**NOTE:**

**When solving an inequality, we use the same strategy as for solving an equation.**

BUT

Remember when we divide or multiply by a negative number, we reverse theinequality sign.

Copy Down

**Switch the inequality sign ONLY when you divide or multiple by a negative**

- Classwork / Homework:

p. 298

Must copy down questions and show ALL work

Remember :
Inequalities must have
a graph accompanying

4
#6
#7 sketch out graphs
#9
#12
# 13

Worksheets