Curriculum Outcome

PR1: . Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

PR3. Model and solve problems using linear equations of the form:

$ax = b$; = b , $a \neq 0$; $ax + b = c$; $+b = c$, $a \neq 0$; = b, $x \neq 0$ ax ax xa

$ax + b = cx + d$; $a(bx + c) = d(ex + f)$; $a(x + b) = c$; ax = b+cx

concretely, pictorially and symbolically, where*a, b, c, d, e, and f* are rational numbers

Student Friendly: Replacing the equal sign with an inequality sign (ie. <, >)

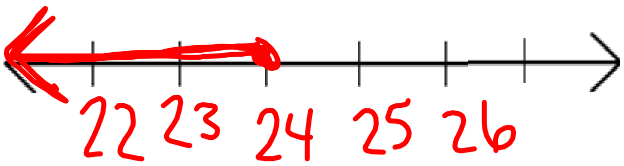
Warm Up

1. $11 \geq x - 13$

$+13 \quad +13$

$24 \geq x$

$x \leq 24$



2. $5y - 8 < -2y + 6$

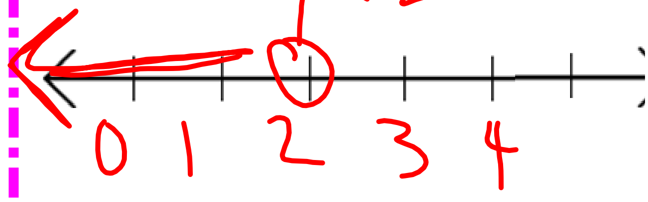
$+2y \quad +2y$

$7y - 8 < 6 + 8$

$+8$

$\frac{7y}{7} < \frac{14}{7}$

$y < 2$



Match each inequality with the graph of its solution:

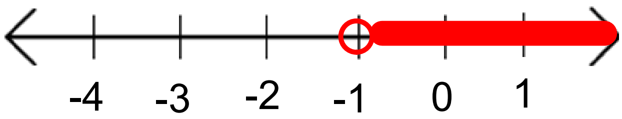
a) $x - 3 > 5$
$+3 \quad +3$
$x > 8$

b) $-10 \geq -4 + p$
$+4 \quad +4$
$-6 \geq p$
$p \leq -6$

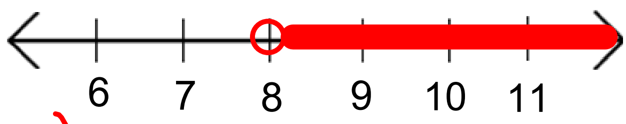
c) $7 < r + 8$
$-8 \quad -8$
$-1 < r$

d) $-5 + w \leq -2$
$+5 \quad +5$
$w \leq 3$

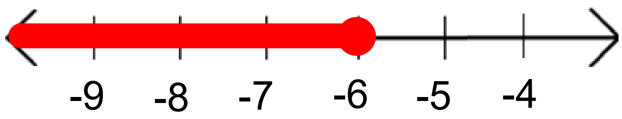
1) C $r > -1$



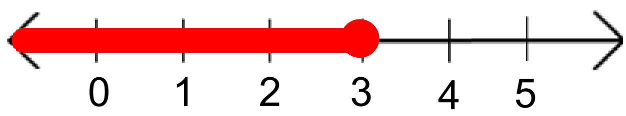
2) A



3) B



4) D



Solving Problems Using Inequalities:

Alison plans to rent a hall for her grad party.

- The Douglastown Rec Centre charges \$90 plus \$20 an hour.
- The Chatham Head Rec Centre charges \$100 plus \$19 an hour.

For how many hours must she rent the hall in Douglastown in order for it to be less expensive than the hall in Chatham Head?

Write an expression that reprsents each scenario

Let h = number of hours

Douglastown: $90 + 20h$ Chatham Head: $100 + 19h$

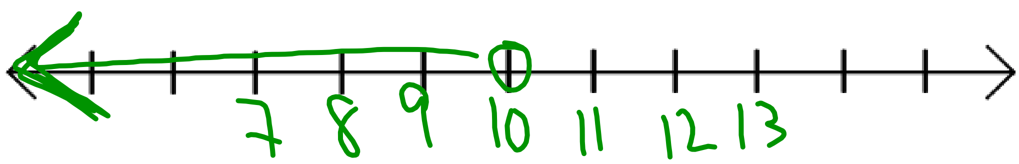
Set up the inequality

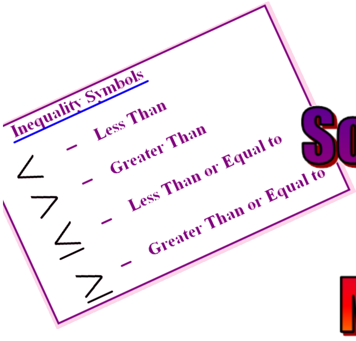
$-19h$ $\quad$ $-19h$

$$90 + 20h < 100 + \cancel{19}h$$

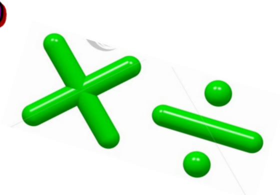
$$\cancel{90} + 1h < 100 - 90$$

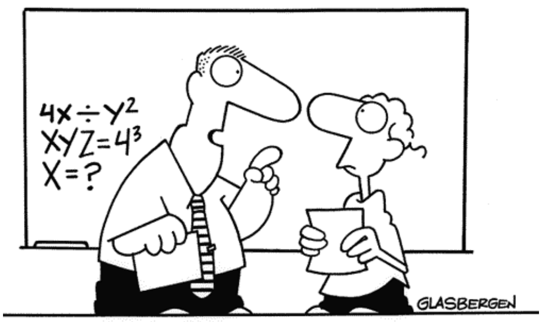
$$-\cancel{90} \qquad h < 10$$





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.

$5 \ \boxed{>} \ -7$

$5(-1) \ \boxed{} \ -7(-1)$

Now lets multiply each side by (-1)

$-5 < 7$

What do you notice???

Let's Have A Look ....

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

-6 $\boxed{>}$ -18

$\frac{-6}{-6}$ $\boxed{}$ $\frac{-18}{-6}$

Now lets divide each side by (-6)

What do you notice???

1 < 3

Properties of Inequalties

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

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

$-6 < 5$

NOTE:

When solving an inequality, we use the same strategy as for solving an equati

BUT

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

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

Solving a Multi-Step Inequality

What if you solve for a negative "variable"

1) $\frac{\cancel{-2}n}{\cancel{-2}} > \frac{12}{-2}$

$n < -6$

$-2(-7) > 12$

$14 > 12$

2) $(-4)\cancel{-\frac{n}{4}} > 2(-4)$

$n < -8$

$\frac{-12}{-4} > 2$

$3 > 2$

Classwork / Homework:

p. 298 Questions:
4ace, 6ac, 7, 9acef, 12,13

p. 305 Questions:
7abd,9ace,10,11ac,12ac,
13,16ac,17a,18