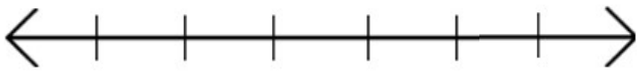
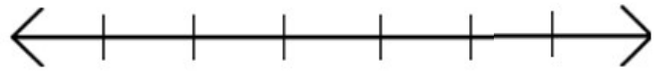
Warm Up

1. $11 \geq x - 13$

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



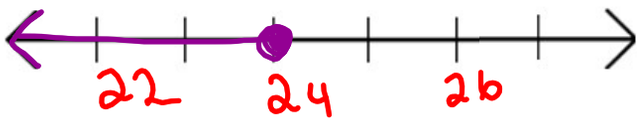


Warm Up

1. $11 \geq x - 13$ (+13 +13)

$24 \geq x$

$x \leq 24$

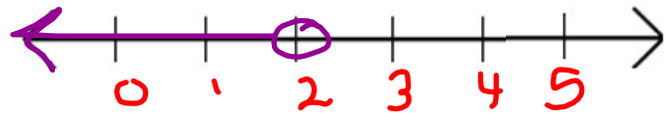


2. $5y - 8 < -2y + 6$ (+2y +2y)

$7y - 8 < 6$ (+8 +8)

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

$y < 2$



Solving Problems Using Inequalities:

Alison plans to rent a hall for her grad party. $90 + 20h$

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

$100 + 19h$

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 $D < C$

$90 + 20h < 100 + 19h$

Set up the inequality

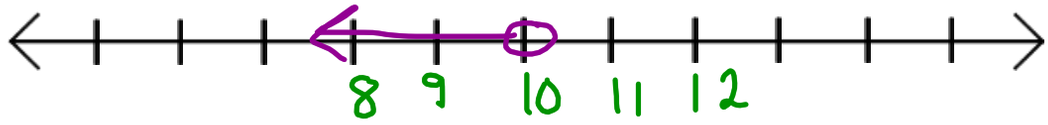
$90 + 20h < 100 + 19h$

$-19h \quad -19h$

$90 + 1h < 100$

$-90 \quad -90$

$1h < 10$



Section 6.5
Solving Linear Inequalities by Using Multiplication & Division

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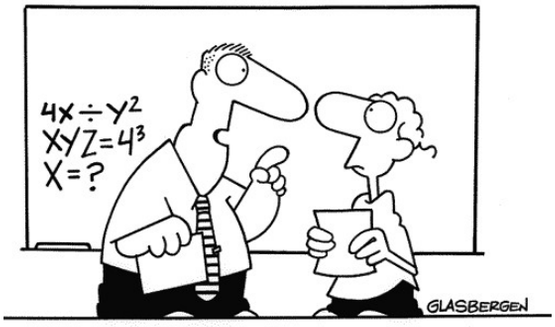


"Algebra class will be important to you later in life because there's going to be a test a few days from now."

Let's Have A Look ....

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

$5 \quad \square \quad -7$

$\times(-1) \qquad \times(-1)$

$-5 \quad < \quad 7$

Let's Have A Look ....

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

$-6 \quad > \quad -18$

$-3 \qquad\qquad -3$

$2 \quad < \quad 6$

$$\frac{-6x}{-6} > \frac{18}{-6}$$

$$x < -3$$

$$-6x \overset{+6x}{>} 18 \overset{+6x}{}$$

$$0 \overset{-18}{>} 18 \overset{-18}{} + 6x$$

$$\frac{-18}{6} > \frac{6x}{6}$$

$$-3 > x$$

$$\boxed{x < -3}$$

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

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

$-6 < 5$ FIX

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 the inequality sign.

Rule:

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

$-5x > 10$

$\downarrow$ ← divide by neg must switch

$\frac{-5x}{-5} < \frac{10}{-5}$

$x < -2$

Solving a Multi-Step Inequality

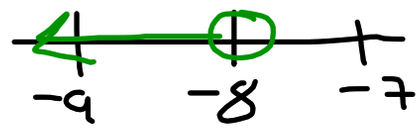
What if you solve for a negative "variable"

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

$n < -6$

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

$n < -8$



Solving a Multi-Step Inequality

What if you solve for a negative "variable"

2) $-2n - 5 > 6n + 7$

$+2n \quad +2n$

$-5 > 8n + 7$

$-7 \quad -7$

$\frac{-12}{8} > \frac{8n}{8}$

$\frac{-12}{8} > n$

$n < \frac{-12}{8}$

$n < -\frac{3}{2}$

2) $-2n - 5 > 6n + 7$

$-6n \quad -6n$

$-8n - 5 > 7$

$*5 \quad +5$

$\frac{-8n}{-8} > \frac{12}{-8}$

rule must apply

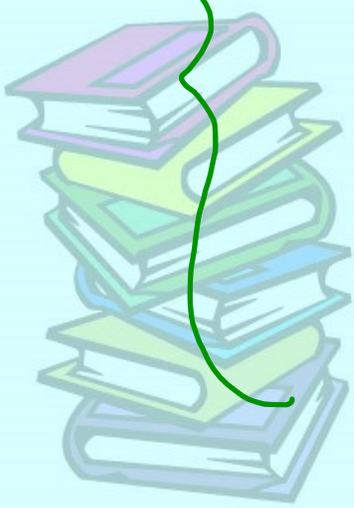
$n < \frac{-12}{8}$

$n < -\frac{3}{2}$

Classwork / Homework:

p. 298 4,6,7 yesterday

Questions 9ace, 11ac, 12ac, 13



p. 305

Questions 7abd,9ace, 10,11ac,12ac,13,16ac, 17a,18