Warm-Up

2. $\quad \dfrac{4}{6}(-2x+3) = \dfrac{4x}{6} + \dfrac{1}{5}$

1. $\quad \dfrac{1}{2} + 3x = \dfrac{4}{6} + \dfrac{1}{3} - 4x$

$\dfrac{6}{2} + 18x = \dfrac{24}{6} + 2 - 24x$

$3 + 18x = 4 + 2 - 24x$

$3 + 18x = 6 - 24x$

$3 + 18x + 24x = 6 \boxed{24x + 24x}$

$3 + 42x = 6$

$3\ 3 + 42x = 6 - 3$

$\dfrac{42x}{42} = \dfrac{3}{72}$

$x = \dfrac{1}{14}$

1

2. $\frac{4}{6}$ (-2x +3) = $\frac{4x}{5}$ + 1

(30) over the 4, (30) over 4x, (30) over 1

$$\frac{120}{6}(-2x+3) = \frac{120}{5} + 30$$

$$20(-2x+3) = 24x + 30$$

$$-40x + 60 = 24x + 30$$

$$-40x - 24x + 60 = \boxed{24x - 24x} + 30$$

$$-64x + 60 = 30$$

$$-64x + 60 - 60 = 30 - 60$$

$$\frac{-64x}{\cdot 64} = \frac{-30}{\cdot 64} \qquad x = \frac{15}{32}$$

Section 6.3   Linear Inequalities

An **inequality** is used to model a situation that can be described by a **range of numbers** rather than a single number.

What does it mean?	**Possible solutions**
x = 3 "x" is 3 "x" has to be 3	3
x > 3 "x" is greater than 3	4, 55, 8.96, 796
x < 3 "x" is less than 3	2½, -3.9, -428, 0
x ≤ 5 "x" is less than or equal to 5 ↑ or equal to	-722, 5, 4.3, 0

Define a variable and write an inequality for each situation.

a)

SPEED LIMIT 55

$x \leq 55$

b)

Height Restriction
You must be at least 102 cm to go on this ride.

$h \geq 102$

c)

Store at temperatures below 4°C

$m < 4$

d)

Canadian Home Video 14A Rating

$r \geq 14$

Define a variable and write an inequality to describe each situation:

A. Contest entrants must be at least 18 years old.

A) Let "a" represent the age

B) $a \geq 18$

B. The temperature has been below -5 degrees for the last week.

A) Let "t" represent the temperature.

B) $t < -5$

C. You must have 7 items or less to use the express checkout.

A) Let "I" represent items

B) $I \leq 7$

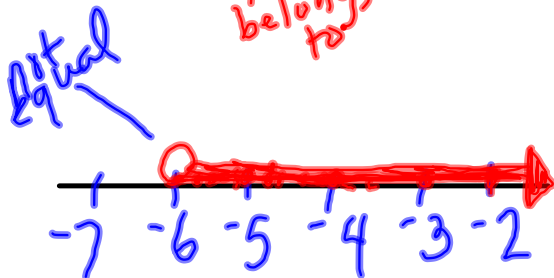D. Scientists have identified over 40 species of dinosaurs

y > -6

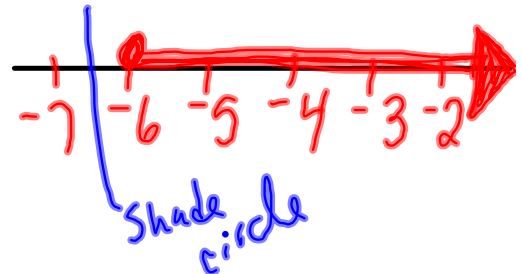What are some possible numbers for "y" ?

Because there are so many possible solutions for inequalities they are usually represented on a number line

y> -6   y $\in$ R   ← real numbers

belongs to

equal

-7 -6 -5 -4 -3 -2

y $\geq$ -6   y $\in$ R

-7 -6 -5 -4 -3 -2

shade circle

You are soooo LUCKY to have homework on this special day!!!

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3, 4, 5, 6,
 7 [a, c]
8 [a, c]
9 [sketch the number line