

# Chapter 1 Section 10

## INEQUALITIES



## INEQUALITIES

Any mathematical sentence  
that contains an  
inequality sign



# INEQUALITIES

Say:  $m$  is less than 32

Write:  $m < 32$



# INEQUALITIES

Say:  $m$  is greater than 6

Write:  $m > 6$



# INEQUALITIES

Just like equations,  
inequalities can be **TRUE**,  
**FALSE**, or **OPEN**.



# INEQUALITIES

$33 > 14$       TRUE

$90 < 22$       FALSE

$d > 44$       OPEN

**\*\* $d > 44$  is neither true  
nor false until the  
variable  $d$  is replaced with  
a number\*\***



# INEQUALITIES

There are also the symbols  $\leq$   
and  $\geq$  that can be used in  
inequalities.



They are combinations of  
equal signs and inequality  
symbols.

# INEQUALITIES

Say:  $x$  is less than or equal  
to 5

Write:  $x \leq 5$



# INEQUALITIES

Say:  $x$  is greater than or  
equal to 9

Write:  $x \geq 9$



Examples: State whether each  
inequality is true, false, or open.

$$7 > 2$$

TRUE!



Examples: State whether each inequality is true, false, or open.

$$5 < 3$$



FALSE!!

Examples: State whether each inequality is true, false, or open.

$$3 \geq 2$$

greater than  
OR  
equal to



TRUE!

Examples: State whether each inequality is true, false, or open.

$$x - 2 \leq 9$$

OPEN



Examples: State whether each inequality is true, false, or open.

$$21 > 21$$

FALSE!!



Examples: State whether each inequality is true or false for the given value.

$$r + 2 \geq 7 \quad (r = 6)$$

$$6 + 2 \geq 7$$



$$8 \geq 7 \quad \checkmark \text{ TRUE!}$$

Examples: State whether each inequality is true or false for the given value.

$$14 \geq m + 6 \quad (m = 4)$$

$$14 \geq 4 + 6$$



$$14 \geq 10 \quad \text{TRUE!}$$



Examples: State whether each inequality is true or false for the given value.

$$3t \geq 7 \quad (t = 7)$$

$$3 \cdot 7 \geq 7$$

$$21 \geq 7$$

TRUE!!



Examples: State whether each inequality is true or false for the given value.

$$2 < 2x - 5 \quad (x = 3)$$

$$2 < 2 \cdot 3 - 5$$

$$2 < 6 - 5$$

$$2 < 1$$

FALSE!

