Ch 9 +4

Kuta Software - Infinite Algebra 2

HW 1

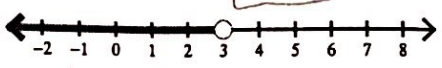
Name Coki's

Solving Inequalities

Date _____ Period ____

Solve each inequality and graph its solution.

1) $0 > 3x - 3 - 6$ $x < 3$



test a point:
0 for x
$0 > 3(0) - 3 - 6$
$0 > -9$
true!
so shade toward 0.

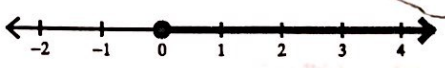
find boundary point: $0 = 3x - 9$
$+9 \quad +9$
$\frac{9}{3} = \frac{3x}{3}$ $x = 3$ does not include 3 (so open circle)

2) $4x + 1 - 1 \geq -8$ $x \geq -2$

test a point on either side in inequality
I like 0!
$4(0) + 1 - 1 \geq -8$
$0 + 0 \geq -8$
$0 \geq -8$ true! 0 is a solution! Shade!

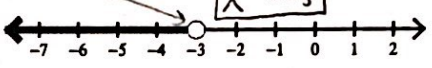
$4x + 1 - 1 = -8$
$4x + 0 = -8$
$\frac{4x}{4} = \frac{-8}{4}$
$x = -2$ ← boundary pt.

3) $-1 \leq 2n + 4 - 5$



$x \geq 0$

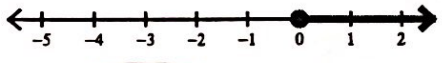
4) $-6 > 5n + 5 + 4$ $x < -3$



$-6 = 5n + 9$
$-9 \quad -9$
$\frac{-15}{5} = \frac{5n}{5}$
$-3 = n$ ← boundary point.

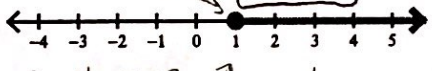
test a point on either side
↳ I like 0!
$-6 > 5n + 9$
$-6 > 5(0) + 9$
$-6 > 9$ not true!
Shade other side. not side that includes 0!

5) $0 \leq 2n + 3n$



$x \geq 0$

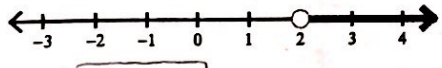
6) $2p - 4p \leq -2$ $x \geq 1$



$2p - 4p = -2$
$\frac{-2p}{-2} = \frac{-2}{-2}$
$p = 1$
boundary point.

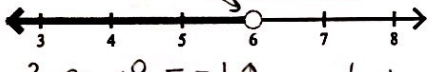
test a point on either side.
I like 0!
$-2p \leq -2$
$-2(0) \leq -2$
$0 \leq -2$ not true!
Shade other side.

7) $7 < -(-k - 3) + 2$



$x > 2$

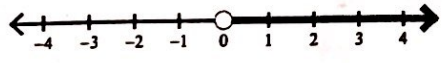
8) $3 - 2(n - 4) > -1$ $x < 6$



$3 - 2n + 8 = -1$
$11 - 2n = -1$
$-11 \quad -11$
$\frac{-2n}{-2} = \frac{-12}{-2}$
$n = 6$

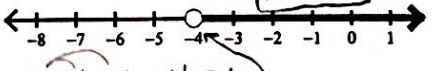
test a point on either side.
Let's try 7!
$3 - 2(7 - 4) > -1$
$3 - 2(3) > -1$
$3 - 6 > -1$
$-3 > -1$ not true!
Shade other side!!

9) $-5(1 - 4a) > -5$



$x > 0$

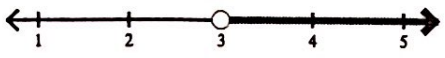
10) $-2(b + 1) + 4 < 10$ $x > -4$



$-2(b + 1) + 4 = 10$
$-2b - 2 + 4 = 10$
$-2b + 2 = 10$
$-2 \quad -2$
$\frac{-2b}{-2} = \frac{8}{-2}$
$b = -4$
boundary point

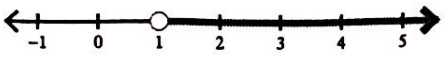
Let's use 0! My favorite!
$-2(0 + 1) + 4 < 10$
$-2(1) + 4 < 10$
$-2 + 4 < 10$
$2 < 10$ true!
Shade the side that includes 0!

11) $a - 15 > -4(-6 + 3a)$



$X > 3$

12) $3(6b - 1) > 18 - 3b$

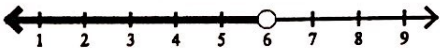


$X > 1$

13) $26 + m \geq 5(-6 + 3m)$

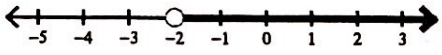
$X \leq 4$

14) $20 - 2p > -2(p + 2) + 4p$



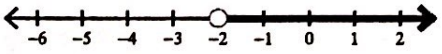
$X < 6$

15) $x + 1 + 1 + 6x > 3(x - 4) - (x - 4)$



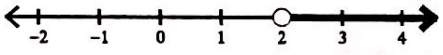
$X > -2$

16) $-6(1 + 6x) < 6(1 - 5x)$



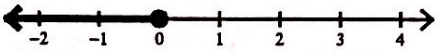
$X > -2$

17) $2(1 - 4r) < -2(r + 3) - 4$



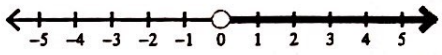
$X > 2$

18) $-6(1 + 2x) \geq 6(2x - 1) + 2x$



$X \leq 0$

19) $-2(1 - 5x) > -(x + 1) - 1$



$X > 0$

20) $5x - (x + 2) > -5(1 + x) + 3$

$X > 0$

Critical thinking questions:

21) Write an inequality with x on both sides whose solution is $x \geq 2$

Many answers. Ex: $2x \geq x + 2$

22) Name one particular solution to question #20.

Any number greater than zero. Ex: 4.7