Bell Work: Solve each equation.

$4(a+2)-2a=10+3(a-3)$

$4a+8-2a=10+3a-9$

$2a+8=3a+1$

$-2a \quad -2a$

$8=a+1$

$-1 \quad -1$

$7=a$

Solve each equation for y.

. $\frac{3}{7}(y+2)=g$

$\frac{3}{7}y+\frac{6}{7}=g$

$3y+6=7g$

$3y=7g-6$

$y=\frac{7}{3}g-2$

Solving Inequalities

open closed
$<, >, \leq, \geq$

Write the inequality that represents the sentence.

1. Four less than a number is greater than negative 28.

$x - 4 > -28$

3. A number increased by 7 is less than 5.

$x + 7 < 5$

Solve each inequality. Graph the solution.

O = open $<, >$

● = closed, $\leq, \geq$

5. $3(x+1)+2<11$

$3x+3+2<11$

$3x+5<11$

$3x<6$

$x<2$

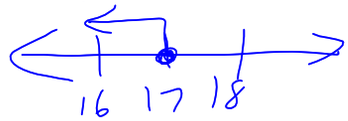
7. $2[(2y-1)+y] \leq 5(y+3)$

$2[3y-1] \leq 5y+15$

$6y-2 \leq 5y+15$

$-5y \quad +2 \quad -5y \quad +2$

$y \leq 17$



9. $5-2(n+2) \leq 4+n$

$5-2n-4 \leq 4+n$

$-2n+1 \leq 4+n$

$-n \quad +1 \quad -n$

$-3n \leq 3$

$\frac{-3n}{-3} \leq \frac{3}{-3}$

$n \geq -1$

Is the inequality *always*, *sometimes*, or *never* true?

11. $3(2x + 1) > 5x - (2 - x)$

$6x+3 > 5x-2+x$

$6x+3 > 6x-2$

$3 > -2$

always

13. $7x + 2 \leq 2(2x - 4) + 3x$

$7x+2 \leq 4x-8+3x$

$7x+2 \leq 7x-8$

$2 \leq -8$

never

Solve each compound inequality. Graph the solution.

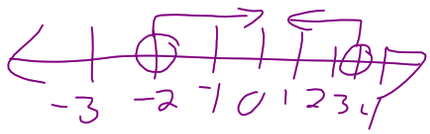
and → ← or ← →

15. $3x > -6$ and $2x < 6$

$\frac{3x}{3} > \frac{-6}{3}$ and $\frac{2x}{2} < \frac{6}{2}$

$x > -2$ and $x < 3$

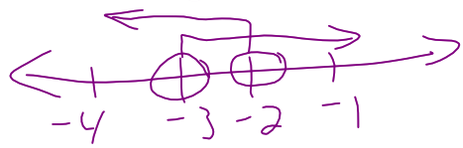
$-2 < x < 3$



17. $6x < -12$ or $5x > -15$

$\frac{6x}{6} < \frac{-12}{6}$ or $\frac{5x}{5} > \frac{-15}{5}$

$x < -2$ or $x > -3$



Solve each problem by writing and solving a compound inequality.

19. A student believes she can earn between \$5200 and \$6250 from her summer job. She knows that she will have to buy four new tires for her car at \$90 each. She estimates her other expenses while she is working at \$660. How much can the student save from her summer wages?

$5200 \leq x + 1020 \leq 6250$

$-1020 \quad -1020 \quad -1020$

$\$4180 \leq x \leq \$5230$

$90(4) = 360$

$360 + 660$

1020