

Solving Inequalities

Date _____ Period _____

Solve each inequality and graph its solution.

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

$$a - 15 > 24 - 12a$$

$$+12a \quad +12a$$

$$13a - 15 > 24$$

$$+15 \quad +15$$

$$13a > 39$$

$$\frac{13a}{13} > \frac{39}{13}$$

$$a > 3$$

$(3, \infty)$

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

$$18b - 3 > 18 - 3b$$

$$+3b \quad +3b$$

$$21b - 3 > 18$$

$$+3 \quad +3$$

$$21b > 21$$

$$\frac{21b}{21} > \frac{21}{21}$$

$$b > 1$$

$(1, \infty)$

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

$$26 + m \geq -30 + 15m$$

$$+30 \quad +30$$

$$56 + m \geq 15m$$

$$-m \quad -m$$

$$56 \geq 14m$$

$$\frac{56}{14} \geq \frac{14m}{14}$$

$$4 \geq m$$

$(-\infty, 4]$

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

$$20 - 2p > -2p - 4 + 4p$$

$$20 - 2p > 2p - 4$$

$$+4 \quad +4$$

$$24 - 2p > 2p$$

$$+2p \quad +2p$$

$$24 > 4p$$

$$\frac{24}{4} > \frac{4p}{4}$$

$$6 > p$$

$(-\infty, 6)$

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

$$x + 2 + 6x > 3x - 12 - x + 4$$

$$7x + 2 > 2x - 8$$

$$-2x \quad -2x$$

$$5x > -10$$

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

$$x > -2$$

$(-2, \infty)$

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

$$-6 - 36x < 6 - 30x$$

$$-6 < 6 + 6x$$

$$-12 < 6x$$

$$\frac{-12}{6} < \frac{6x}{6}$$

$$-2 < x$$

$(-2, \infty)$

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Name _____

Compound Inequalities

Date _____ Period _____

Solve each compound inequality and graph its solution.

11) $-5b - 8 \leq -68$ or $11b - 12 < -100$

$$-5b - 8 \leq -68$$

$$+8 \quad +8$$

$$-5b \leq -60$$

$$\frac{-5b}{-5} \leq \frac{-60}{-5}$$

$$b \leq 12$$

$$11b - 12 < -100$$

$$+12 \quad +12$$

$$11b < -88$$

$$\frac{11b}{11} < \frac{-88}{11}$$

$$b < -8$$

$(-\infty, -8)$ or $(12, \infty)$

12) $36 \leq 11 - 5x \leq 66$

$$36 \leq 11 - 5x \leq 66$$

$$-11 \quad -11$$

$$25 \leq -5x \leq 55$$

$$\frac{25}{-5} \leq \frac{-5x}{-5} \leq \frac{55}{-5}$$

$$-5 \geq x \geq -11$$

$[-11, -5]$

13) $-10 - 2v < 6$ and $6v + 12 < -6$

$$-10 - 2v < 6$$

$$+10 \quad +10$$

$$-2v < 16$$

$$\frac{-2v}{-2} < \frac{16}{-2}$$

$$v < -8$$

$$6v + 12 < -6$$

$$-12 \quad -12$$

$$6v < -18$$

$$\frac{6v}{6} < \frac{-18}{6}$$

$$v < -3$$

$(-8, -3]$

14) $2x - 3 < 11$ or $-8x - 10 < -82$

$$2x - 3 < 11$$

$$+3 \quad +3$$

$$2x < 14$$

$$\frac{2x}{2} < \frac{14}{2}$$

$$x < 7$$

$$-8x - 10 < -82$$

$$+10 \quad +10$$

$$-8x < -72$$

$$\frac{-8x}{-8} < \frac{-72}{-8}$$

$$x > 9$$

$(-\infty, 7)$ or $(9, \infty)$