2.3 Solving Inequalities

PRACTICE

Directions: Solve each inequality. Express the solution graphically and in set notation.

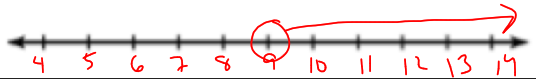
1) $7 < \frac{x}{9} + 6$

$-6 \quad -6$

$(9)1 < \frac{x}{9}(9)$

$9 < x$

$\{x \text{ real} \mid x > 9\}$



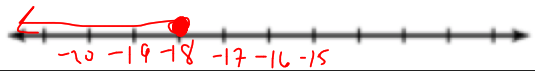
2) $-7 + \frac{h}{3} \leq -13$

$+7 \quad +7$

$(3)\frac{h}{3} \leq -6(3)$

$h \leq -18$

$\{h \text{ real} \mid h \leq -18\}$



3) $50.32 < -6.29(8.5 + x)$

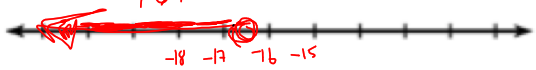
$50.32 < -53.465 + -6.29x$

$+53.465 \quad +53.465$

$\frac{103.785}{-6.29} < \frac{-6.29x}{-6.29}$

$-16.57 < x$

$\{x \text{ real} \mid x > -16.5\}$



4) $-3 - 3a + 6a \neq 9$

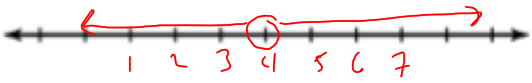
$-3 + 3a \neq 9$

$+3 \quad +3$

$\frac{3a}{3} \neq \frac{12}{3}$

$a \neq 4$

$\{a \text{ real} \mid a \neq 4\}$



5) $-5(1 - 2n) \geq -17 + 8n$

$-5 + 10n \geq -17 + 8n$

$-8n \quad -8n$

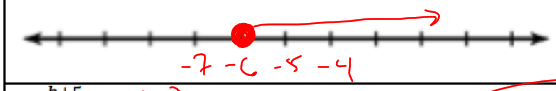
$-5 + 2n \geq -17$

$+5 \quad +5$

$\frac{2n}{2} \geq \frac{-12}{2}$

$n \geq -6$

$\{n \text{ real} \mid n \geq -6\}$



6) $30 - 4a \geq -2(7a - 5)$

$30 - 4a \geq -14a + 10$

$+14a \quad +14a$

$30 + 10a \geq 10$

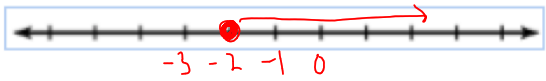
$-30 \quad -30$

$10a \geq -20$

$\frac{10a}{10} \geq \frac{-20}{10}$

$a \geq -2$

$\{a \text{ real} \mid a \geq -2\}$



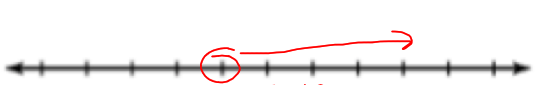
7) $\frac{b+5}{22} > 1 \quad (22)$

$b + 5 > 22$

$-5 \quad -5$

$b > 17$

$\{b \text{ real} \mid b > 17\}$



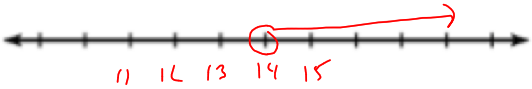
8) $-36 > -3x + 6$

$-6 \quad -6$

$\frac{-42}{-3} > \frac{-3x}{-3}$

$14 < x$

$\{x \text{ real} \mid x > 14\}$



9) $11 \neq 2b - 1 - 6b$

$11 \neq -4b - 1$

$+1 \quad +1$

$\frac{12}{-4} \neq \frac{-4b}{-4}$

$-3 \neq b$

$\{b \text{ real} \mid b \neq -3\}$

10) $-5.7x - 10.3 < 7.3x + 14.4$

$-14.4 \quad -14.4$

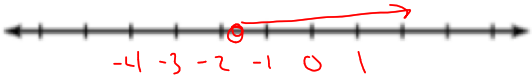
$-5.7x - 24.7 < 7.3x$

$+5.7x \quad +5.7x$

$\frac{-24.7}{13} < \frac{13x}{13}$

$-1.9 < x$

$\{x \text{ real} \mid x > -1.9\}$



11) $16 + 4x \leq -4(x + 8)$

$16 + 4x \leq -4x - 32$

$+4x \quad +4x$

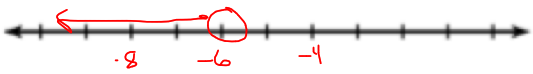
$16 + 8x \leq -32$

$-16 \quad -16$

$\frac{8x}{8} \leq \frac{-48}{8}$

$x \leq -6$

$\{x \text{ real} \mid x \leq -6\}$



12) $-27 - 7h \geq -2h - (8h + 6)$

$-27 - 7h \geq -2h - 8h - 6$

$-27 - 7h \geq -10h - 6$

$+10h \quad +10h$

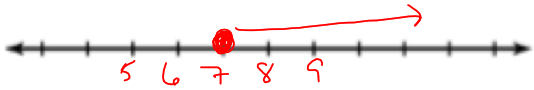
$-27 + 3h \geq -6$

$+27 \quad +27$

$\frac{3h}{3} \geq \frac{21}{3}$

$h \geq 7$

$\{h \text{ real} \mid h \geq 7\}$



Directions: Multiply the polynomials.

13) $2x(4x - 8)$

$8x^2 - 16x$

14) $(2x - 1)(4x - 8)$

$8x^2 - 16x - 4x + 8$

$8x^2 - 20x + 8$

15) $(2x - 1)(4x^2 - 8x + 3)$

$8x^3 - 16x^2 + 6x - 4x^2 + 8x - 3$

$8x^3 - 20x^2 + 14x - 3$