

# 1.2 Practice - Solving Inequalities

Solve each equation.

LCM = 20  
 $(1) -2x - \frac{7}{4} = -\frac{47}{20} - \frac{3}{2}x$   
 $-40x - 35 = -47 - 30x$   
 $-10x = -12$   
 $x = \frac{6}{5} = 1.2$

LCM = 6  
 $(2) 2k + \frac{4}{3} = \frac{3}{2} + \frac{5}{3}k$   
 $12k + 8 = 9 + 10k$   
 $2k = 1$   
 $k = \frac{1}{2}$

LCM = 18  
 $(3) \frac{77}{9} + a + \frac{17}{6}a = -\frac{11}{6}a - \frac{5}{3}a$   
 $154 + 18a + 51a = -33a - 30a$   
 $69a + 154 = -63a$   
 $154 = -132a$   
 $1.1667 \cdot \frac{2}{2} = a$

LCM = 6  
 $(4) m + \frac{1}{2} = \frac{2}{3}m + \frac{5}{6}$   
 $6m + 3 = 4m + 5$   
 $2m = 2$   
 $m = 1$

LCM = 4  
 $(5) k + \frac{5}{4} = \frac{9}{4} + \frac{3}{2}k$   
 $4k + 5 = 9 + 6k$   
 $-4 = 2k$   
 $-2 = k$

LCM = 60  
 $(6) -\frac{9}{4}n - \frac{1}{3}n = \frac{7}{4}n + \frac{39}{5}$   
 $-135n - 20n = 105n + 468$   
 $-155n = 105n + 468$   
 $-260n = 468$   
 $n = \frac{468}{-260} = -1.8 = -\frac{9}{5}$

Solve each inequality and graph its solution.

7)  $6 + m \geq -13$   
  
 $m \geq -19$

8)  $-16n \geq -112$   
  
 $n \leq 7$

9)  $1 \leq -8 - k$   
  
 $9 \leq -k$   
 $-9 \geq k$   
 "k is less than or = -9"

10)  $-7(1 + 8m) + 8 > -335$   
  
 $-7 - 56m + 8 > -335$   
 $-56m + 1 > -335$   
 $-56m > -336$   
 $m < 6$

11)  $84 > 6(-2n + 6)$   
  
 $84 > -12n + 36$   
 $48 > -12n$   
 $-4 < n$

12)  $60 < 2(2x - 4) - 6(-x - 3)$   
  
 $60 < 4x - 8 + 6x + 18$   
 $60 < 10x + 10$   
 $50 < 10x$   
 $5 < x$   
 "x is greater than 5"

13)  $3n + 3(5n + 6) \geq 7(3n + 3)$   
  
 $3n + 15n + 18 \geq 21n + 21$   
 $18n + 18 \geq 21n + 21$   
 $-3 \geq 3n$   
 $-1 \geq n$   
 "n is less than or equal to -1"

14)  $-3 \leq \frac{x}{4} \cdot 4$   
  
 $-12 \leq x$   
 "x is greater than or = -12"

Solve each compound inequality and graph its solution.

15)  $-\frac{25}{5} < -5r \leq \frac{50}{5}$   
  
 $5 > r \geq -10$   
 $-10 \leq r < 5$

Change Inequalities!  
 (DIV by negative)

16)  $-44 < 1 - 5k < -34$   
  
 $-45 < -5k < -35$   
 $-9 > k > 7$   
 $7 < k < 9$

17)  $\frac{n}{5} > -1$  or  $4n < -40$   
  
 $n > -5$  or  $n < -10$

18)  $3 + 6a \leq -45$  or  $-7 - 5a < -2$   
  
 $3 + 6a \leq -45$   
 $6a \leq -48$   
 $a \leq -8$   
 $-7 - 5a < -2$   
 $-5a < 5$   
 $a > -1$   
 $a \leq -8$  or  $a > -1$