Name: _____

Solving Linear Inequalities

1) Given the set $S = \{2, 4, -3, \frac{1}{3}\}$, use substitution to determine which of the elements of *S* satisfy each of the following inequalities.

   1) $2x+5 \le 10$
   2) $4x-2 > -14$
   3) $-2x+1 > -7$
   4) $-3x+1 \ge 0$
   5) $\frac{1}{x} \le \frac{2}{5}$

2) Solve the inequality. Graph the solution on the real number line. Write the solution in interval notation.

   1) $2x < 10$
   2) $3x \ge 24$
   3) $-5x \ge 30$
   4) $-4x < 40$
   5) $2x-5 \ge -11$
   6) $3x+4 \le -17$
   7) $8-3x > 20$
   8) $10-x > 0$
   9) $4x-11 < 7x+4$
   10) $5-9x \le 3x-7$
   11) $10x-7 \ge 2x+6$
   12) $8-4x < 6-5x$
   13) $5-8x \ge 4x+1$
   14) $x+10 \ge 8x-9$
   15) $-3(4+5x) < -2(7-x)$
   16) $-4(3-2x) \le -(x+20)$
   17) $\frac{5}{6} - \frac{1}{3}x \le \frac{1}{2}(x+5)$
   18) $\frac{2}{5}\left(x+\frac{1}{2}\right) > -\frac{1}{3}(10-x)$
   19) $-10 \le 3x+2 < 8$
   20) $-4 \le 3-7x \le 17$
   21) $-9 < 2x-3 < 13$
   22) $-19 < 5-4x \le -3$
   23) $\frac{2}{3} < \frac{3x-10}{15} < \frac{4}{5}$
   24) $\frac{3}{4} > \frac{5-2x}{6} > -\frac{5}{3}$