

1. Solve the following linear inequality  $-5x - 1 \leq 5x < -5x + 3$ .

A.  $-\frac{11}{10} \leq x < -\frac{7}{10}$

B.  $\frac{19}{30} < x \leq \frac{7}{30}$

C.  $-\frac{1}{10} \leq x < \frac{3}{10}$

D.  $\frac{33}{10} < x \leq \frac{29}{10}$

E.  $\frac{29}{10} \leq x < \frac{33}{10}$

F.  $\frac{7}{30} \leq x < \frac{19}{30}$

G.  $\frac{3}{10} < x \leq -\frac{1}{10}$

H.  $-\frac{7}{10} < x \leq -\frac{11}{10}$

2. Solve the following linear inequality  $2x - 1 < -5x < 2x + 3$  and express your answer in interval notation.

A.  $x \in (-\frac{10}{7}, -\frac{6}{7})$

B.  $x \in (\frac{1}{7}, -\frac{3}{7})$

C.  $x \in (-\frac{6}{7}, -\frac{10}{7})$

D.  $x \in [-\frac{10}{7}, -\frac{6}{7}]$

E.  $x \in (-\frac{3}{7}, \frac{1}{7})$

F.  $x \in [-\frac{6}{7}, -\frac{10}{7}]$

G.  $x \in [\frac{1}{7}, -\frac{3}{7}]$

H.  $x \in [-\frac{3}{7}, \frac{1}{7}]$

3. Solve the following linear inequality  $2x + 2 \geq 0$  AND  $3x + 3 < 2$ .

A.  $-2 < x < -\frac{4}{3}$

B. The inequality is true for all values of  $x$ . Therefore, it is a contradiction.

C.  $x \geq 2$  OR  $x < \frac{8}{3}$

D.  $-\frac{1}{3} < x \leq -1$

E.  $-\frac{1}{3} \leq x \leq -1$

F.  $-1 < x < -\frac{1}{3}$

G.  $-\frac{4}{3} < x < -2$

H.  $-1 \leq x < -\frac{1}{3}$

4. Solve the following linear inequality  $5x - 4 > 5$  AND  $2x + 1 \leq 3$  and express your answer in interval notation.

A.  $x \in [1, \frac{9}{5})$

B.  $x \in [\frac{9}{5}, 1)$

C.  $x \in (-\infty, -1] \cap [-\frac{1}{5}, \infty)$

D.  $x \in (-\infty, -\frac{1}{5}) \cup (-1, \infty)$

E. The inequality has no solution  $x$ . Therefore, it is a contradiction.

F.  $x \in (1, \frac{9}{5}]$

G.  $x \in (-\infty, -\frac{1}{5}] \cup [-1, \infty)$

H.  $x \in (-\infty, -1) \cap (-\frac{1}{5}, \infty)$

5. Solve the following linear inequality  $3x \geq 4$  OR  $2x - 1 \leq 0$  and express your answer in interval notation.

A.  $x \in (-\infty, \frac{1}{2}) \cap (\frac{4}{3}, \infty)$

B.  $x \in (-\infty, \frac{1}{2}] \cup [\frac{4}{3}, \infty)$

C.  $x \in (-\infty, \frac{3}{4}] \cap [\frac{19}{12}, \infty)$

D.  $x \in \mathbb{R} = (-\infty, \infty)$

E.  $x \in (-\infty, \frac{9}{2}) \cap (\frac{16}{3}, \infty)$

F.  $x \in (-\infty, -\frac{2}{3}] \cap [-\frac{3}{2}, \infty)$

G.  $x \in (-\infty, \frac{16}{3}] \cup [\frac{9}{2}, \infty)$

H.  $x \in (-\infty, -\frac{2}{3}) \cup (-\frac{3}{2}, \infty)$

6. Solve the following linear inequality  $-5x - 1 < 4x < -5x + 1$ .

A.  $-\frac{4}{9} < x < -\frac{2}{9}$

B.  $\frac{1}{9} < x < -\frac{1}{9}$

C.  $-\frac{1}{9} < x < \frac{1}{9}$

D.  $-\frac{7}{18} < x < -\frac{11}{18}$

E.  $-\frac{2}{9} < x < -\frac{4}{9}$

F.  $\frac{35}{9} < x < \frac{37}{9}$

G.  $-\frac{11}{18} < x < -\frac{7}{18}$

H.  $\frac{37}{9} < x < \frac{35}{9}$

7. Solve the following linear inequality  $4x - 3 \geq 4$  AND  $3x - 4 < -2$  and express your answer in interval notation.

A.  $x \in (-\infty, \frac{19}{4}) \cup (\frac{11}{3}, \infty)$

B.  $x \in (-\infty, \frac{11}{3}] \cap [\frac{19}{4}, \infty)$

C.  $x \in (-\infty, -\frac{5}{4}] \cup [-\frac{7}{3}, \infty)$

D.  $x \in (\frac{2}{3}, \frac{7}{4}]$

E.  $x \in [\frac{2}{3}, \frac{7}{4})$

F.  $x \in (-\infty, -\frac{7}{3}) \cap (-\frac{5}{4}, \infty)$

G.  $x \in (\frac{7}{4}, \frac{2}{3}]$

H. The inequality has no solution  $x$ . Therefore, it is a contradiction.

8. Solve the following linear inequality  $3x - 5 > 5$  OR  $4x < -2$ .

A.  $x < \frac{1}{3}$  OR  $x > -\frac{7}{2}$

B.  $x > \frac{1}{3}$  OR  $x < -\frac{7}{2}$

C.  $x < \frac{11}{3}$  OR  $x > -\frac{1}{6}$

D. The inequality is true for all values of  $x$ . Therefore, it is an unconditional inequality.

E.  $x > \frac{10}{3}$  OR  $x < -\frac{1}{2}$

F.  $x > \frac{11}{3}$  OR  $x < -\frac{1}{6}$

G.  $x > \frac{16}{3}$  OR  $x < \frac{3}{2}$

H.  $x < \frac{10}{3}$  OR  $x > -\frac{1}{2}$