

1. Solve the following inequalities and express your answer in interval notation.

(a) $|3x| < 6$

(b) $|5x| \leq 15$

(c) $|12x| \geq 4$

(d) $3|x| > 8$

(e) $\frac{2}{3}|x| < \frac{6}{5}$

(f) $\left|\frac{6}{7}x\right| \leq 2$

(g) $|x + 1| < 5$

(h) $|x - 7| > 4$

(i) $|2x - 4| \geq 7$

(j) $|3x + 7| > 12$

(k) $\left|\frac{x - 3}{2}\right| < 1$

(l) $\left|\frac{4x - 9}{7}\right| \leq 13$

(m) $\left|\frac{x - 1}{3}\right| \leq 15$

(n) $\left|\frac{4x - 3}{5}\right| \geq 6$

(o) $4 + \left|\frac{x - 2}{2}\right| > 15$

Answers

1. (a) $[-2, 2]$

(b) $[-3, 3]$

(c) $\left(-\infty, -\frac{1}{3}\right] \cup \left[\frac{1}{3}, \infty\right)$

(d) $\left(-\infty, -\frac{8}{3}\right) \cup \left(\frac{8}{3}, \infty\right)$

(e) $\left(\frac{-9}{5}, \frac{9}{5}\right)$

(f) $\left[\frac{-7}{3}, \frac{7}{3}\right]$

(g) $(-6, 4)$

(h) $(-\infty, 3) \cup (11, \infty)$

(i) $\left(-\infty, -\frac{3}{2}\right] \cup \left[\frac{11}{2}, \infty\right)$

(j) $\left(-\infty, -\frac{19}{3}\right) \cup \left(\frac{5}{3}, \infty\right)$

(k) $(1, 5)$

(l) $\left[-\frac{41}{2}, 25\right]$

(m) $[-44, 46]$

(n) $\left(-\infty, -\frac{27}{4}\right] \cup \left[\frac{33}{4}, \infty\right)$

(o) $(-\infty, -20) \cup (24, \infty)$