Algebra 3

1.5 Homework

Solve each inequality and graph its solution. Write your answer in Interval Notation.

1) \(20 > -3a - 7a\)

\(\frac{a > -2}{-2, \infty}\)

2) \(1 \geq 1 + 8x - x\)

\(\frac{x \leq 0}{(-\infty, 0]}\)

3) \(3(1 + 6p) \geq 111\)

\(\frac{p \geq 6}{6, \infty}\)

4) \(2(1 + 6b) - 8 \leq -90\)

\(\frac{k \leq -7}{(-\infty, -7]}\)

Solve each compound inequality and graph its solution. Write your answer in Interval Notation.

5) \(13 < x + 4 < 14\)

\(\frac{x < 10}{9, 10}\)

\(\frac{x > 9}{9, \infty}\)

6) \(n - 10 > -9 \text{ or } \frac{n}{9} < 0\)

\(\frac{n > 1}{(-\infty, 0)} \cup (1, \infty)\)

7) \(-11 \leq 7 + 3r < 7\)

\(\frac{r < 0}{-\infty, 0}\)

\(\frac{r \geq -6}{-\infty, -6}\)

8) \(8 + 5m \geq 38 \text{ or } 9m + 9 \leq 9\)

\(\frac{m \geq 6}{-\infty, 6}\)

\(\frac{m \leq 0}{-\infty, 0}\)

Write each inequality using interval notation, and illustrate each inequality using the real number line.

9) \(0 < x \leq 4\)

\([-\infty, 4]\)

10) \(x \leq -6\)

\([-\infty, -6]\)

Write each interval as an inequality involving \(x\), and illustrate each inequality using the real number line.

11) \((-\infty, 3)\)

\(\frac{x < 3}{-\infty, 3}\)

12) \([0, \infty)\)

\(\frac{x \geq 1}{0, \infty}\)