

4.10 HOMEWORK HANDOUT: INEQUALITIES

PART A

1) Determine which points satisfy the given inequality.

- a) $x + y > -5$ $(-2, -5)$ $(3, 7)$ $(4, -2)$ $(1, -3)$
- b) $x + y \leq 2$ $(-8, -2)$ $(3, 4)$ $(-5, 1)$ $(-7, 9)$
- c) $x + y < -6$ $(-2, 8)$ $(-3, 5)$ $(-2, -10)$ $(-5, -3)$
- d) $x + y \geq 3$ $(1, 2)$ $(7, -5)$ $(-3, 10)$ $(-5, 5)$

2) Determine which points satisfy the given inequality.

- a) $x - y < 4$ $(3, 7)$ $(-2, -9)$ $(-1, -5)$ $(-2, 5)$
- b) $x - y \geq -3$ $(5, 2)$ $(-5, -2)$ $(5, -2)$ $(-5, 2)$
- c) $x - y \leq -7$ $(9, 12)$ $(-5, 2)$ $(-1, -5)$ $(-3, 5)$
- d) $x - y > 5$ $(-2, 6)$ $(-3, 5)$ $(-1, -6)$ $(3, -5)$

3) Determine which points satisfy the given inequality.

- a) $x > -1$ $(-3, 7)$ $(-1, 5)$ $(-5, 4)$ $(2, 3)$
- b) $y \leq -7$ $(4, -9)$ $(-8, 3)$ $(-3, -7)$ $(7, -3)$
- c) $x \leq 4$ $(4, -2)$ $(-5, -3)$ $(7, -3)$ $(5, 4)$
- d) $y > 4$ $(-2, 5)$ $(4, 9)$ $(5, -4)$ $(-3, -2)$

4) Determine which points satisfy the given inequality.

- a) $xy \leq 8$ $(3, 4)$ $(-2, -4)$ $(2, 3)$ $(-5, 2)$
- b) $xy < -2$ $(-1, 2)$ $(-3, -4)$ $(3, -5)$ $(-1, 1)$
- c) $xy > 6$ $(-2, -3)$ $(-5, -3)$ $(4, -2)$ $(5, 2)$
- d) $xy \geq -10$ $(-2, 5)$ $(-3, 5)$ $(-1, -4)$ $(3, -2)$

PART B

5) Graph the region defined by the inequality.

- a) $x + y > -3$ b) $x - y \geq -2$ c) $x + y < 5$ d) $x - y \leq 4$

6) Graph the region defined by the inequality.

- a) $x \leq -3$ b) $y > -4$ c) $x > 7$ d) $y \leq 5$

7) Graph the region defined by the inequality.

- a) $xy < 10$ b) $xy \geq -3$ c) $xy \leq -1$ d) $xy > 4$

8) Graph the region defined by the inequality.

- a) $y \geq 2x - 1$ b) $y < \frac{-3}{4}x + 2$ c) $y > \frac{1}{4}x + 5$ d) $y \leq \frac{-5}{6}x - 1$

PART C

9) Graph the region that satisfies both the inequalities.

a) $y \leq \frac{2}{3}x + 3$ AND $y \geq 5x + 1$

b) $x + y \geq 3$ AND $x - y \leq 7$

c) $y \geq 3x + 4$ AND $y \leq \frac{-2}{3}x + 5$

10) Graph the region defined by the inequality.

a) $y \geq x^2$ b) $y \leq x^3$ c) $y \leq 2x^2 - 5$

ANSWERS

1) a) (3,7) (4,-2) (1,-3) b) (-8,-2) (-5,1) c) (-2,-10) (-5,-3) d) (1,2) (7,-5) (-3,10)

2) a) (3,7) (-2,5) b) (5,2) (-5,-2) (5,-2) c) (-5,2) (-3,5) d) (3,-5)

3) a) (-3,7) (-5,4) b) (4,-9) (-3,-7) c) (4,-2) (-5,-3) d) (-2,5) (4,9)

4) a) (-2,-4) (2,3) b) (3,-5) (-1,1) c) (-5,-3) (5,2) d) (-2,5) (-1,-4) (3,-2)

