

4.9 HOMEWORK HANDOUT: INVESTIGATING RELATIONS IN OTHER FORMS

PART A

1) Determine which points satisfy the given relation.

- a) $x + y = 10$ (2,8) (3,7) (11,-1) (5,2)
b) $x + y = -4$ (-6,2) (9,-13) (6,-2) (-1,-3)
c) $x + y = 2$ (1,1) (-3,4) (-2,4) (-2,0)
d) $x + y = -1$ (0,-1) (5,-4) (-1,-1) (-7,6)

2) Determine which points satisfy the given relation.

- a) $x - y = 3$ (10,7) (1,4) (-1,4) (-4,-7)
b) $x - y = -4$ (1,-5) (-5,-1) (-7,-3) (1,5)
c) $x - y = -1$ (2,-3) (5,4) (4,5) (-2,-1)
d) $x - y = 12$ (13,1) (-6,6) (14,2) (-5,-17)

3) Determine which points satisfy the given relation.

- a) $x = 3$ (3,5) (-5,3) (1,2) (3,-4)
b) $y = -5$ (0,-5) (3,-5) (-5,0) (4,-5)
c) $x = -7$ (0,-7) (-2,-5) (-7,-5) (0,-5)
d) $y = 0$ (0,0) (0,-3) (0,-9) (3,0)

4) Determine which points satisfy the given relation.

- a) $xy = 10$ (2,5) (-1,-10) (-8,-2) ($\frac{1}{3}, 30$)
b) $xy = -3$ (-1,-3) (1,-3) (3,-1) (-3,1)
c) $xy = 1$ ($2, \frac{1}{2}$) (-1,-1) (-2,2) ($\frac{4}{5}, \frac{5}{4}$)
d) $xy = -4$ (2,-2) (-1,-4) (-1,4) (-4,1)

PART B

5) Graph the relation by generating a set of **at least 5 points** that satisfies the relation.

- a) $x + y = -3$ b) $x - y = -5$ c) $x + y = 7$ d) $x - y = 2$

6) Graph the relation by generating a set of **at least 3 points** that satisfies the relation.

- a) $x = -2$ b) $x = 3$ c) $x = 4$ d) $y = -8$

7) Graph the relation by generating a set of **at least 8 points (4 in each quadrant)** that satisfies the relation.

- a) $xy = -15$ b) $xy = 2$ c) $xy = -3$ d) $xy = 8$

PART C

8) Using the patterns investigated in the lesson, determine the equation of a line with:

- a) $x\text{-int}=5$ and $y\text{-int}=-5$ b) $x\text{-int}=3$ and $y\text{-int}=3$
 c) $x\text{-int}=-2$ and $y\text{-int}=2$ d) $x\text{-int}=-4$ and $y\text{-int}=-4$

9) Using the patterns investigated in the lesson, determine the equation of a line with:

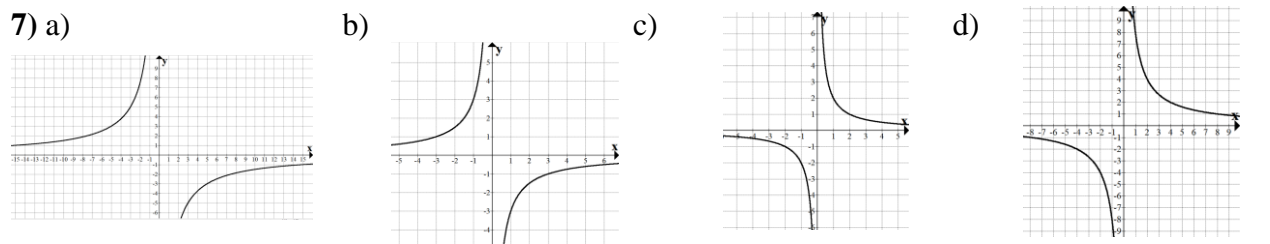
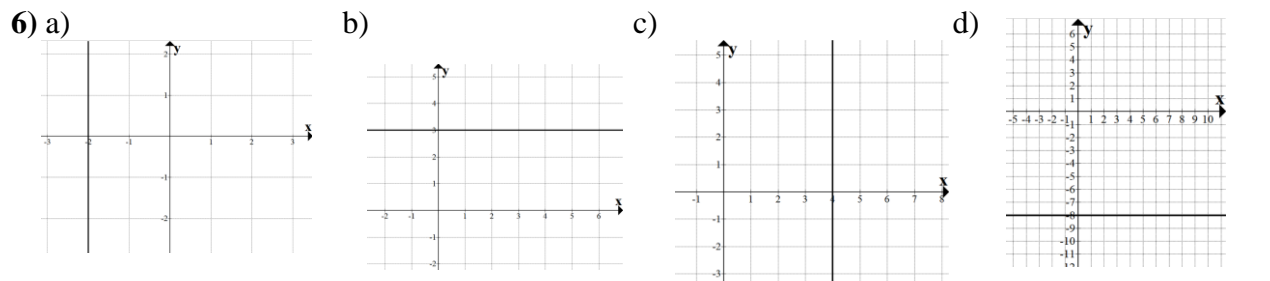
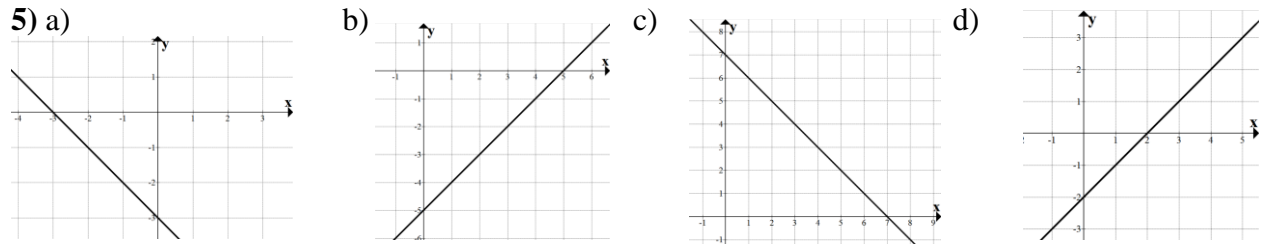
- a) $x\text{-int}=4$ and no $y\text{-int}$ b) vertical line through the point $(-3,4)$
 c) no $x\text{-int}$ and $y\text{-int}=-7$ d) horizontal line through the point $(-5,-6)$

10) Determine the equation of a relation in the form $xy = k$ that also goes through the point:

- a) $(3,-2)$ b) $(-5,-1)$ c) $(2,4)$ d) $(-9,2)$

ANSWERS

- 1) a) $(2,8)$ $(3,7)$ $(11,-1)$ b) $(-6,2)$ $(9,-13)$ $(-1,-3)$ c) $(1,1)$ $(-2,4)$ d) $(0,-1)$ $(-7,6)$
 2) a) $(10,7)$ $(-4,-7)$ b) $(-5,-1)$ $(-7,-3)$ $(1,5)$ c) $(4,5)$ $(-2,-1)$ d) $(13,1)$ $(14,2)$ $(-5,-17)$
 3) a) $(3,5)$ $(3,-4)$ b) $(0,-5)$ $(3,-5)$ $(4,-5)$ c) $(-7,-5)$ d) $(0,0)$ $(3,0)$
 4) a) $(2,5)$ $(-1,-10)$ $(1/3,30)$ b) $(1,-3)$ $(3,-1)$ $(-3,1)$ c) $(2,1/2)$ $(-1,-1)$ $(4/5,5/4)$ d) $(2,-2)$ $(-1,4)$ $(-4,1)$



8) a) $x - y = 5$ b) $x + y = 3$ c) $x - y = -2$ d) $x + y = -4$

9) a) $x = 4$ b) $x = -3$ c) $y = -7$ d) $y = -6$

10) a) $xy = -6$ b) $xy = 5$ c) $xy = 8$ d) $xy = -18$