Today's Learning Goal(s):

Date: *Sept. 23/15*

By the end of the class, I will be able to:
a) recognize funcions in various representations .
b) determine the domain and range for a relation .
c) determine if a relation is a function .

Last day's work: p. 2 #1 – 8
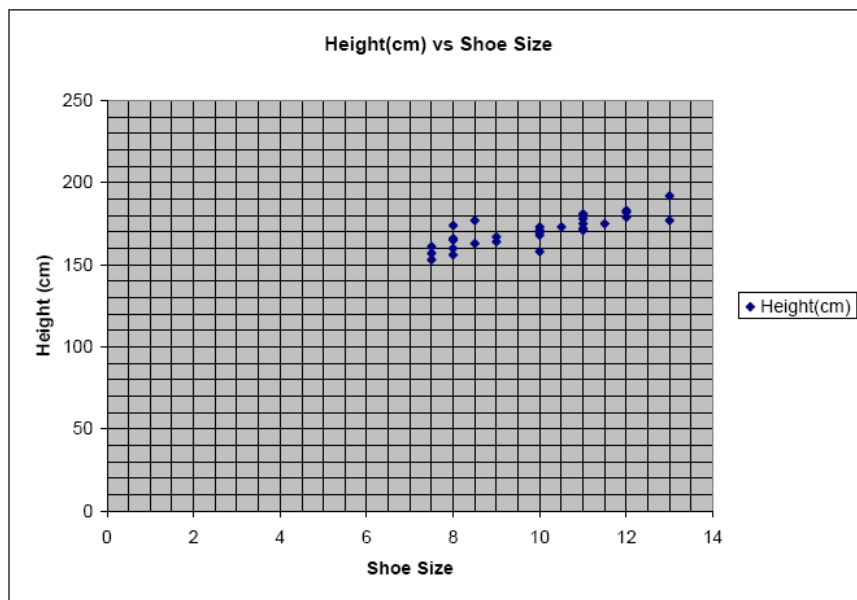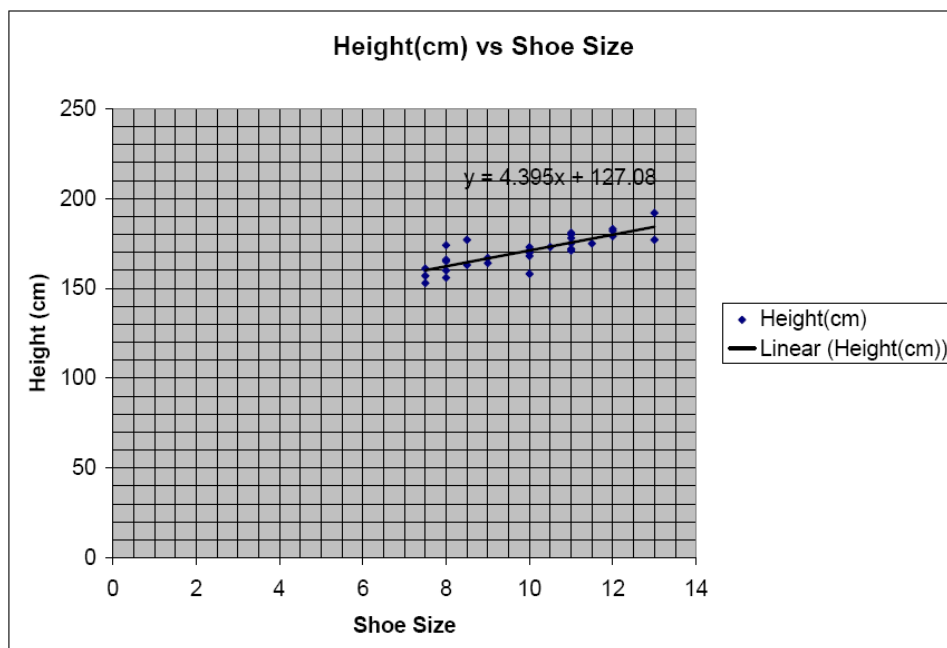
*pp. 4-5 #A - K

In groups compare soluons to pp. 4-5

INVESTIGATE the Math

Shoe Size	Height(cm)
10	158
11.5	175
10	173
9	164
9	167
10	170
11	172
8	160
8	174
11	175
8	166
7.5	153
10	171
11	181
11	171
10	170
8	156
7.5	161
12	179
11	178
10.5	173
8.5	177
8	165
12	182
13	177
13	192
7.5	157
8.5	163
12	183
10	168
11	180

Page 4   INVESTIGATE THE MATH

Height(cm) vs Shoe Size

INVESTIGATE the Math

Height(cm) vs Shoe Size

$y = 4.395x + 127.08$

INVESTIGATE the Math

Shoe Size	Height(cm)
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10	173
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11	172
8	160
8	174
11	175
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11	181
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7.5	161
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Page 4   INVESTIGATE THE MATH

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Page 4   INVESTIGATE THE MATH

Height(cm) vs Shoe Size

$y = 4.395x + 127.08$

♦ Height(cm)
── Linear (Height(cm))

Shoe Size

Height (cm)

1.1 Relations & Functions
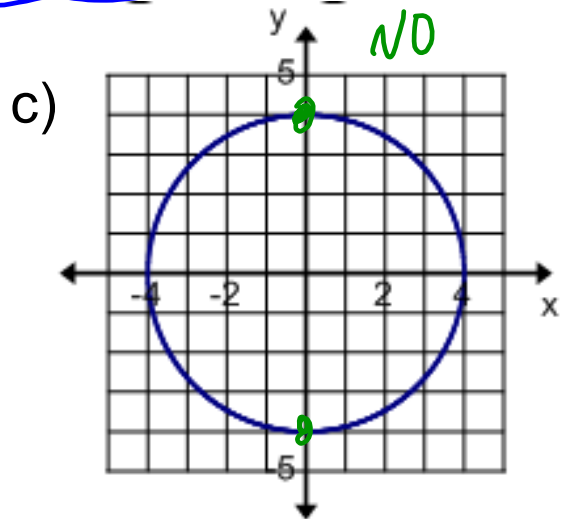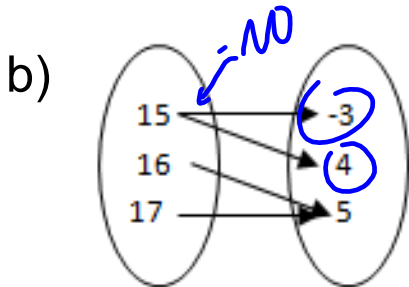# 1.4 Domain & Range

Relation: A set of ordered pairs.

Function: A one-to-one relation.
ie. each x-value has only one corresponding y-value.

Ex.1 Determine if the following relations are functions.

a) $\{(3, 2), (4, 2), (1, -1), (-1, 1), (3, 5)\}$
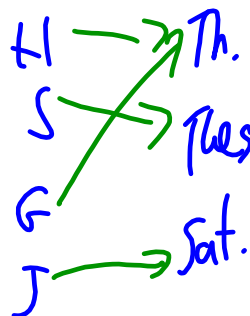
NO

b)

NO

15 → -3
16 → 4
17 → 5

c)

NO

d)

Yes (VLT)
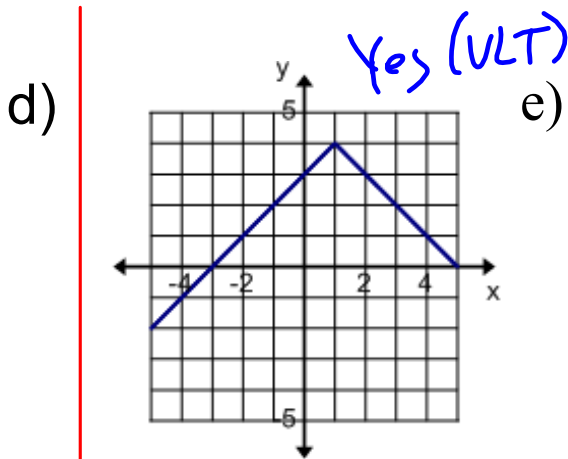
e)

Yes

STUDENT NAME	HOCKEY PRACTICE NIGHT
Heather	Thursday
Scott	Tuesday
Galang	Thursday
Jet	Saturday

H → Th.
S → Tues
G
J → Sat.

Identifying Functions by equations

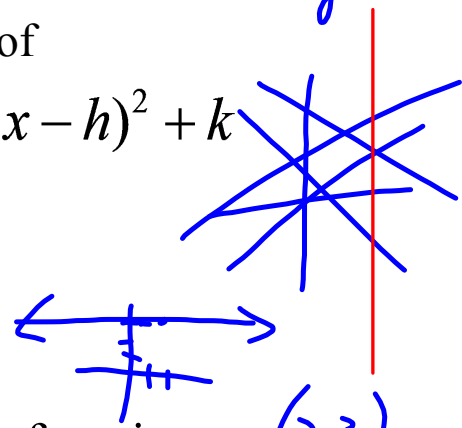1. A linear equation is always a function unless it is a vertical line.

$$y = mx + b \qquad Ax + By = C \quad Ax + By + C = 0$$

2. A Quadratic is a function in the form of

$$y = ax^2 + bx + c \qquad y = a(x-h)^2 + k$$

3. A circle is **NOT** a function.

$$r^2 = x^2 + y^2$$

Ex.2

Circle which relations below are functions. $(2,3)$
$(1,3)$

$y = x^2 - 4$ $y = (x+3)^2$ $y = 3$ $3x + 4y = 1$

$x = 3 \leftarrow$ NO $y = 3x^2 - 4x - 1$ $y = 3x - 4$
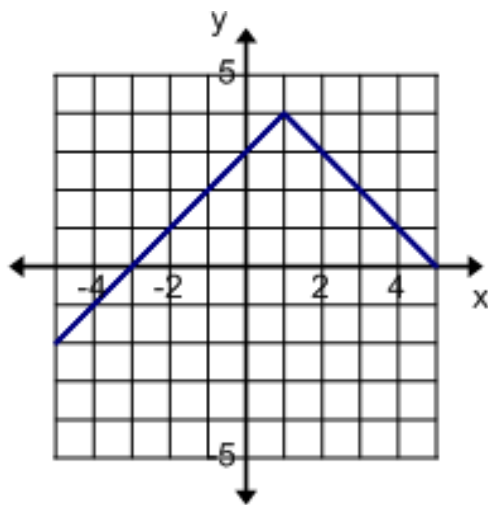
$x^2 + y^2 = 16$ $y = 3(x-4)^2 - 3$ $(x-2)^2 + (x+3)^2 = 25$

NO   NO

Describe the following graph's location on the axes.

$-5 \leq x \leq 5$

$-2 \leq y \leq 4$

We can describe relations mathematically using Domain & Range.

Domain: The set of x-values that form a relation.

Range: The set of y-values that form a relation.

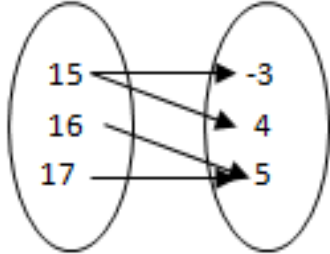Ex. 3 State the Domain & Range for the
following relations.

$\{ \}$

a) {(3, 2), (4, 2), (1, -1), (-1, 1), (3, 5)}
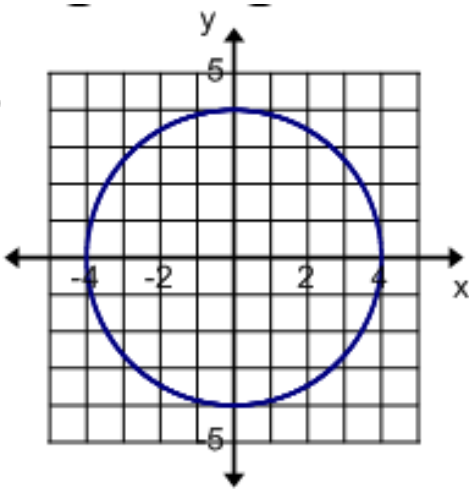
$D = \{3, 4, 1, -1\}$
$R = \{2, -1, 1, 5\}$

$D = \{-1, 1, 3, 4\}$
$R = \{-1, 1, 2, 5\}$
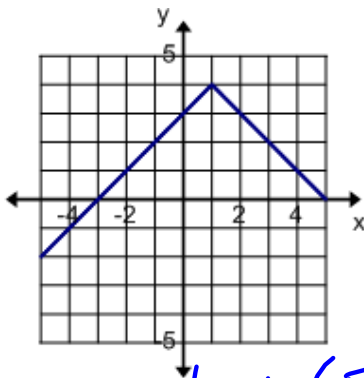
b)

15 → -3
16 → 4
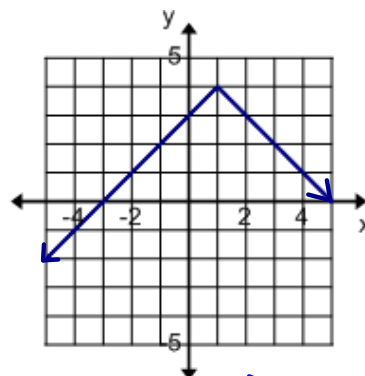17 → 5

$D = \{15, 16, 17\}$
$R = \{-3, 4, 5\}$

c)

$D = \{x \in \mathbb{R} \mid -4 \leq x \leq 4\}$
$R = \{y \in \mathbb{R} \mid -4 \leq y \leq 4\}$

d)

$D = \{x \in \mathbb{R} \mid -5 \leq x \leq 5\}$
$R = \{y \in \mathbb{R} \mid -2 \leq y \leq 4\}$

e)

$D = \{x \in \mathbb{R}\}$
$R = \{y \in \mathbb{R} \mid y \leq 4\}$

9

Today's Homework Practice includes:
READ pp. 5-9
pp. 10-11 #1 –3, 6, 7a, 8, 9b
[p.13 #1-3]
pp. 35-36 #1 – 3, 5