

Parent Functions

Agenda

Warm-Up
HW Check
Notes p.28 & 29
HW: Practice
#1-10

Reminders

Quiz and HW
1.6 due tmr!!

Essential Question

What are the equations and graphs of both the linear and quadratic parent functions?

Warm-Up Thursday

List the domain and range of the graph on the half sheet. Try to not use your notes and definitely do not use your neighbor! I want to know what you know.

Have your homework out and ready to check and your calculator.

GREEN ☺

ORANGE ☹

PINK ☹

Algebra I - Unit 2: Topic 2 – Domain & Range of Graphs

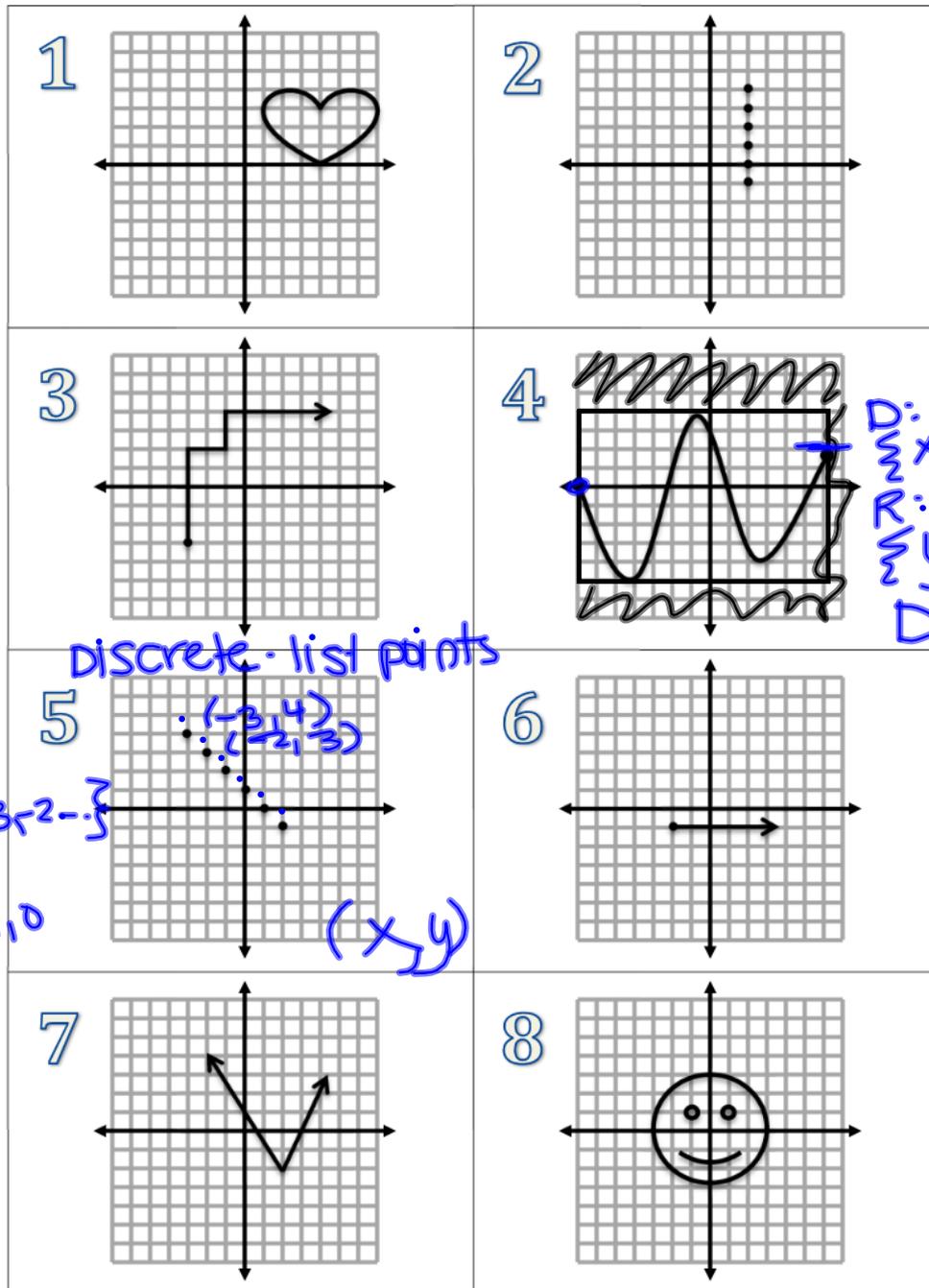
Practice - Domain & Range of Graphs Day 2

pp 236-242

Using the cards and domain and range foldable, find the domain and range of all the graphs. State if the graph is continuous or discrete.

1. Continuous or Discrete? Domain: $\{x \mid 1 \leq x \leq 7\}$ Range: $\{y \mid 0 \leq y \leq 4\}$	2. Continuous or Discrete? Domain: $\{x \mid x = 2\}$ Range: $\{y \mid y = -1, 0, 1, 2, 3, 4\}$
3. Continuous or Discrete? Domain: $\{x \mid x \in \mathbb{R}\}$ $\{x \mid -\infty < x < \infty\}$ Range: $\{y \mid -4 \leq y < \infty\}$	4. Continuous or Discrete? Domain: $\{x \mid -7 \leq x \leq 6\}$ Range: $\{y \mid -5 \leq y \leq 4\}$
5. Continuous or Discrete? Domain: $\{x \mid x = -3, -2, -1, 0, 1, 2\}$ Range: $\{y \mid y = -1, 0, 1, 2, 3, 4\}$	6. Continuous or Discrete? Domain: $\{x \mid -3 \leq x \leq 2\}$ Range: $\{y \mid -3 \leq y \leq 2\}$
7. Continuous or Discrete? Domain: $\{x \mid x \in \mathbb{R}\}$ Range: $\{y \mid -2 \leq y < \infty\}$	8. Continuous or Discrete? Domain: $\{x \mid x \in \mathbb{R}\}$ Range: $\{y \mid y \in \mathbb{R}\}$
9. Continuous or Discrete? Domain: $\{x \mid -3 \leq x \leq 3\}$ Range: $\{y \mid 0 \leq y \leq 3\}$	10. Continuous or Discrete? Domain: $\{x \mid x = -3, -2, -1, 1\}$ Range: $\{y \mid y = -2, -1, 2, 3, 4\}$
11. Continuous or Discrete? Domain: $\{x \mid -4 \leq x \leq 0\}$ Range: $\{y \mid 0 \leq y \leq 5\}$	12. Continuous or Discrete? Domain: $\{x \mid -\infty < x \leq 2\}$ Range: $\{y \mid -2 \leq y < \infty\}$
13. Continuous or Discrete? Domain: $\{x \mid -2 \leq x < \infty\}$ Range: $\{y \mid y = -1\}$	14. Continuous or Discrete? Domain: $\{x \mid -3 \leq x < \infty\}$ Range: $\{y \mid -3 \leq y \leq 4\}$
15. Continuous or Discrete? Domain: $\{x \mid -3 \leq x \leq 3\}$ Range: $\{y \mid -3 \leq y \leq 3\}$	16. Continuous or Discrete? Domain: $\{x \mid -6 \leq x \leq 5\}$ Range: $\{y \mid -5 \leq y \leq 5\}$

4 to 5



1

2

3

4

5

6

7

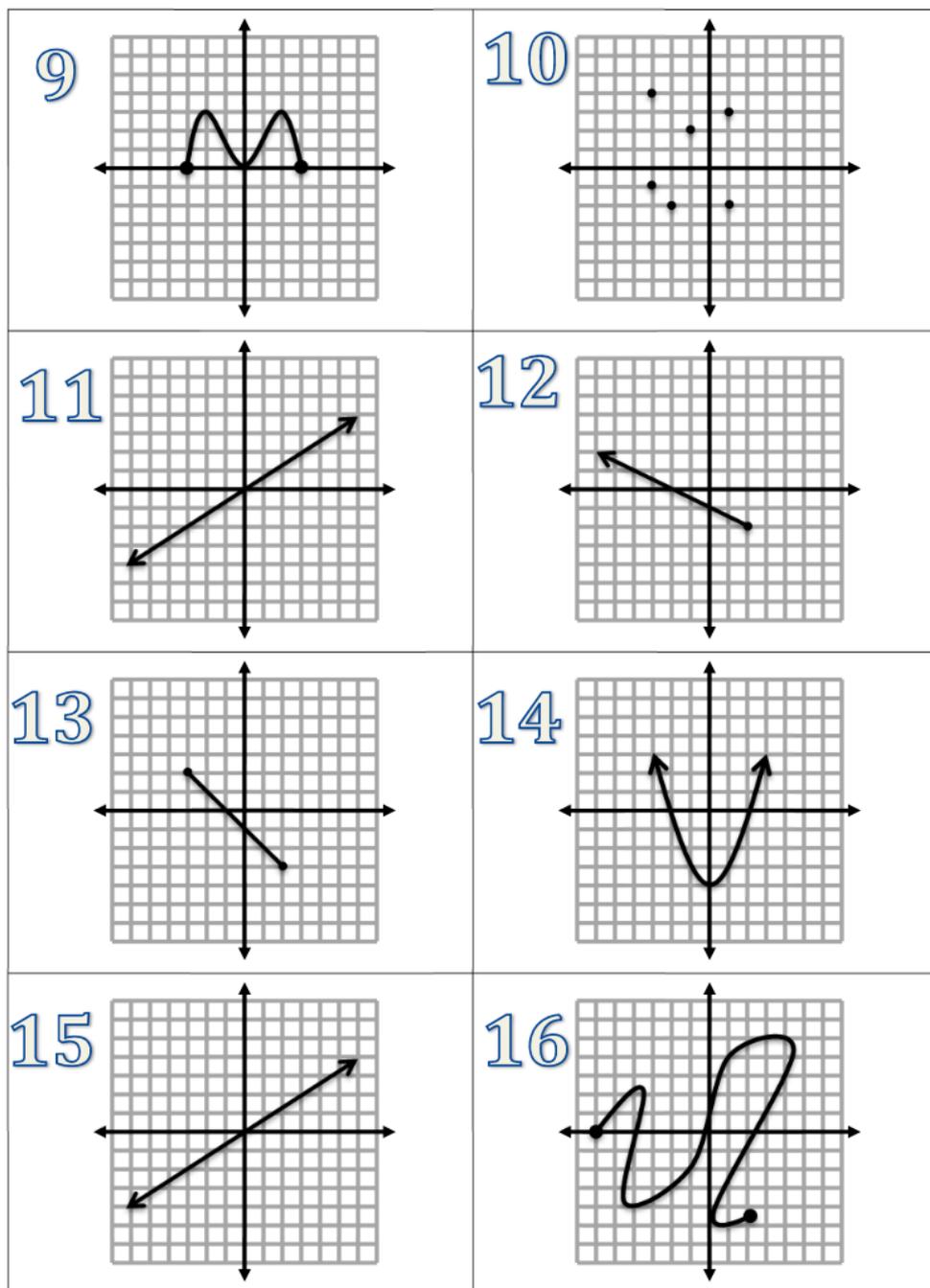
8

Discrete - list points

D:
 $\{x | x = -3, -2, \dots\}$
 R:
 $\{y | y = -1, 0\}$

(x, y)

D:
 $\{x | -2 \leq x \leq 6\}$
 R:
 $\{y | -5 \leq y \leq 4\}$
 DLR

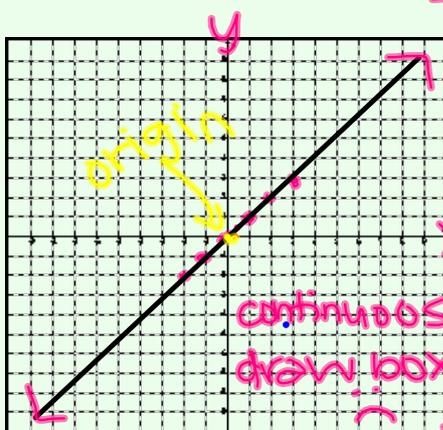


Parent Functions p.28

Essential Question What are the equations and graphs of both the linear and quadratic parent functions?

← name
~~Linear~~ Parent Function

x	y
-2	-2
-1	-1
0	0
1	1
2	2
3	3



EQUATION
 $y = x$
 $y = -2$
 $y = -1$

Domain:

$\{x | -\infty < x < \infty\}$
 OR $\{x | x \in \mathbb{R}\}$

Range:

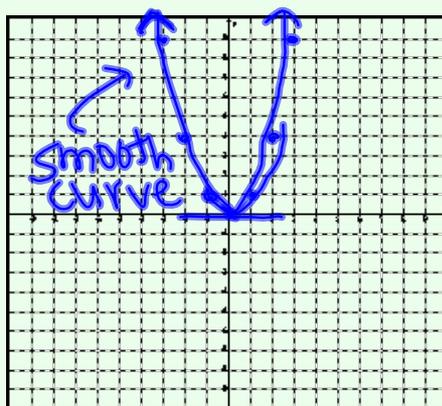
$\{y | -\infty < y < \infty\}$
 OR $\{y | y \in \mathbb{R}\}$

Characteristics:

- ★ line
- ★ passes thru origin (0,0)
- ★ increases (goes up) from left to right

Quadratic Parent Function

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9



$y = x^2$

Domain:

$\{x | -\infty < x < \infty\}$

Range:

$\{y | 0 \leq y < \infty\}$

Characteristics:

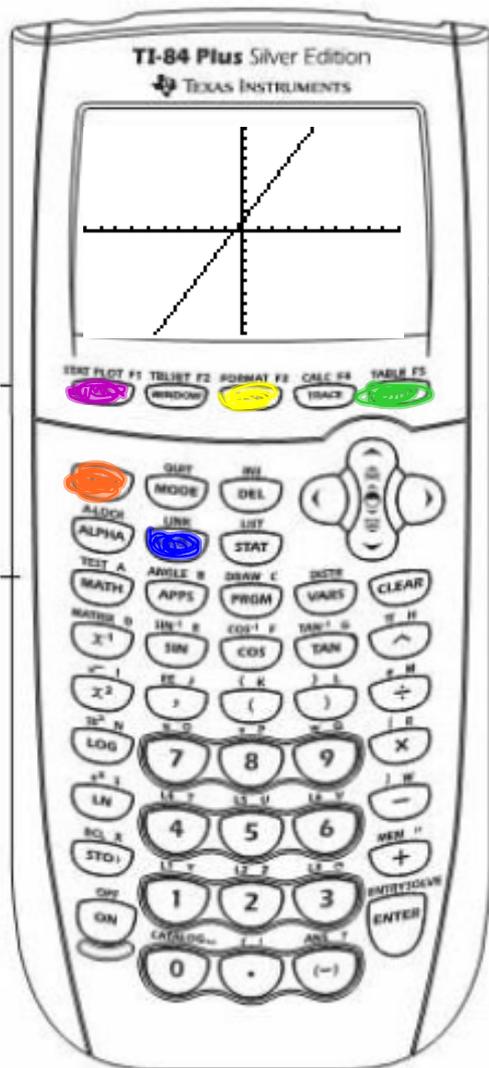
- ★ U-shaped
- ★ passes thru origin
- ★ opens up

Q UADRATIC

How to Graph a function on a TI-84 Calculator p.29

* equation must say $y = \underline{\quad}$ *

ex. Graph $y = 2x + 1$



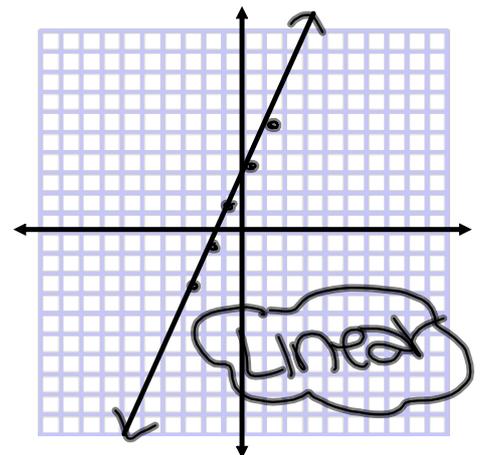
- ① Press $y =$
- ② Press ② X, T, θ, n ①

③ Press **GRAPH**

To reset window:
Press **ZOOM** 6

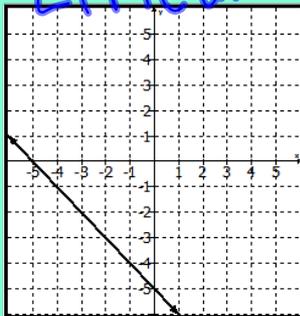
④ To see a table of values, press **2nd** **GRAPH**

X	Y
-2	-3
-1	-1
0	1
1	3
2	5

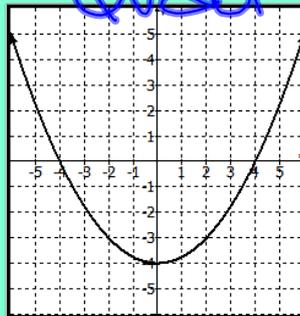


Determine if the graphs are linear (L), quadratic (Q), or neither (N).

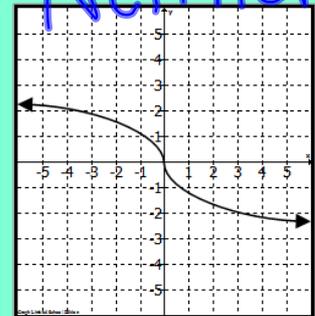
4. Linear



5. Quad



6. Neither



Algebra I - Unit 2: Topic 1

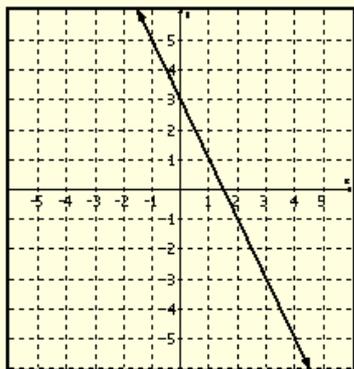
Practice - Domain and Range Using Parent Functions (2 pages)

No Textbook Correlation

Name _____ Date _____ Period _____

Determine if the graphs are linear (L), quadratic (Q), or neither (N). State the Domain and Range.

1.

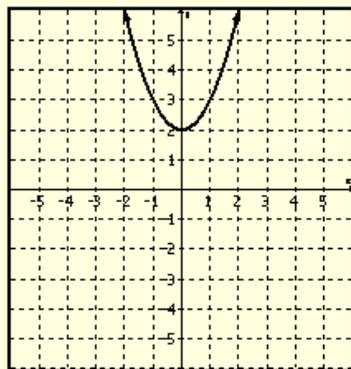


L/Q/N?

Domain

Range

2.

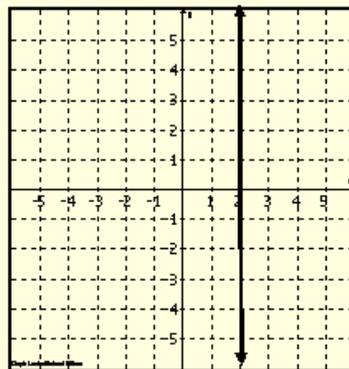


L/Q/N?

Domain

Range

3.

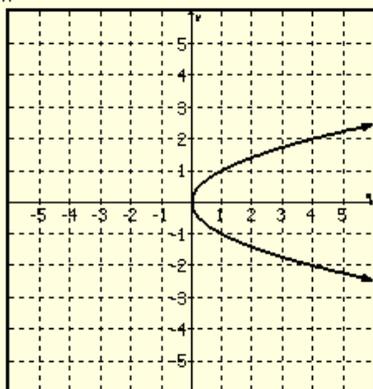


L/Q/N?

Domain

Range

4.

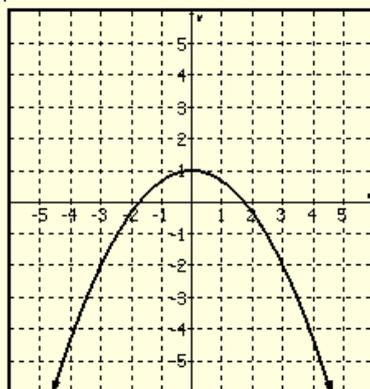


L/Q/N?

Domain

Range

5.

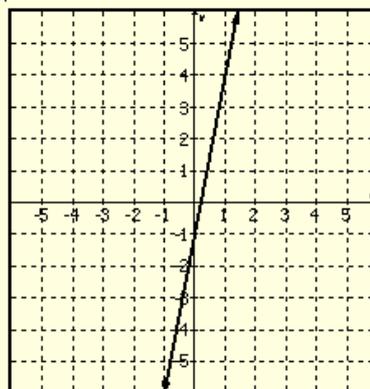


L/Q/N?

Domain

Range

6.



L/Q/N?

Domain

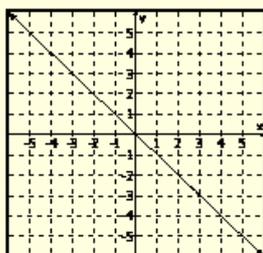
Range

Algebra I - Unit 2: Topic 1

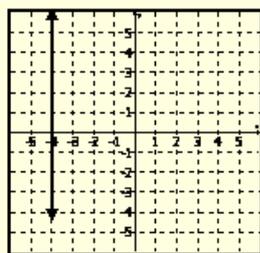
Answer the following.

7. Which graph below best represents the linear parent function?

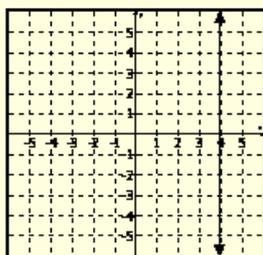
A



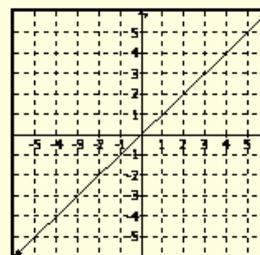
C



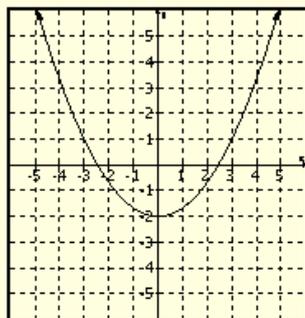
B



D

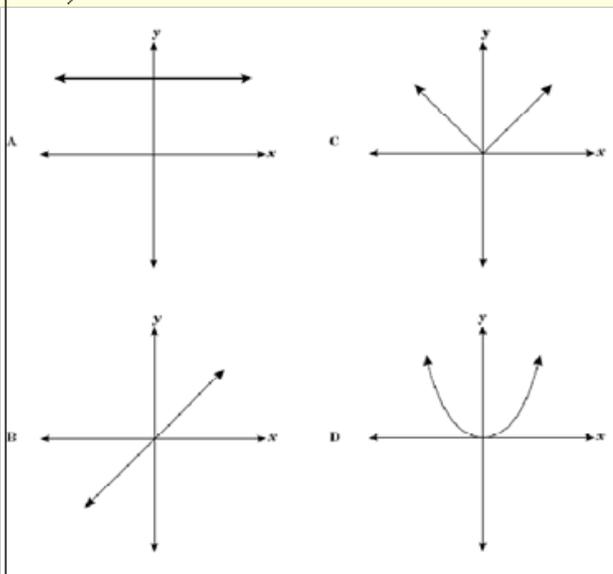


8. Which equation is the parent function of the graph represented below?

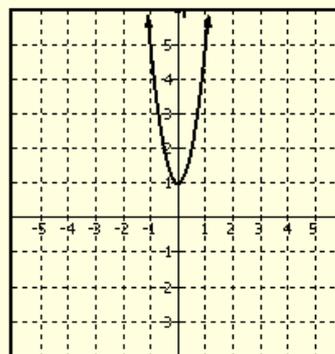


- A $y = x$
- B $y = |x|$
- C $y = x^2$
- D $y = \sqrt{x}$

9. Which is the best representation of the function $y=x$?



10. Which type of parent function is represented by the function graphed below?



- A Exponential
- B Absolute value
- C Linear
- D Quadratic

exit ticket

on a sticky note, solve
the following problem

BE SURE TO WRITE
YOUR NAME

2. Which of the following equations can be used to find the measure of two complementary angles, where the measure of one angle is 7 less than twice the other?

A. $3x - 7 = 90$

B. $7 - x = 90$

C. $2x - 7 = 90$

D. $2x = 90$

Homework Check:

Parent Functions

1. Linear

$$D: \{x \mid x \in \mathbb{R}\}$$

$$R: \{y \mid y \in \mathbb{R}\}$$

2. Quadratic

$$D: \{x \mid x \in \mathbb{R}\}$$

$$R: \{y \mid 2 < y < \infty\}$$

3. Linear

$$D: \{x \mid x = 2\}$$

$$R: \{y \mid y \in \mathbb{R}\}$$

4. Neither

$$D: \{x \mid 0 \leq x < \infty\}$$

$$R: \{y \mid y \in \mathbb{R}\}$$

5. Quadratic

$$D: \{x \mid x \in \mathbb{R}\}$$

$$R: \{y \mid -\infty < y \leq -1\}$$

6. Linear

$$D: \{x \mid x \in \mathbb{R}\}$$

$$R: \{y \mid y \in \mathbb{R}\}$$

7. D

8. C

9. B

10. D

