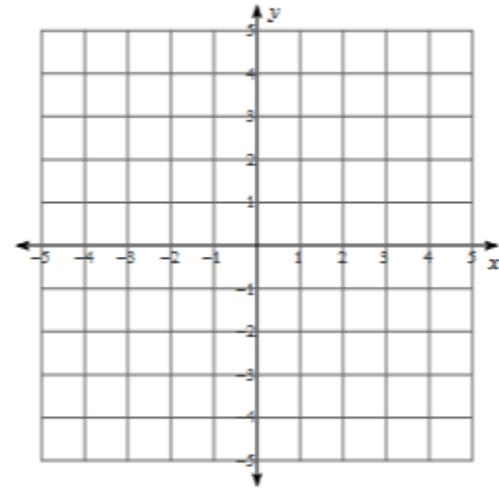


2.1 Represent Functions and Relations

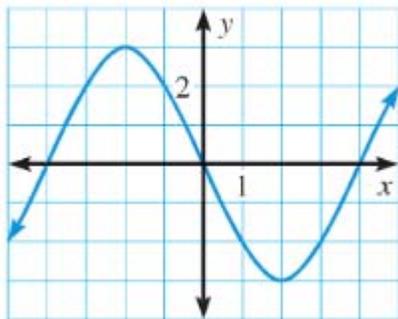
Relation:Domain:Range:Consider the following relation: $(0, 2)$, $(-2, 4)$, $(4, -3)$ and $(-2, -4)$.

Identify the domain and range:

Function:

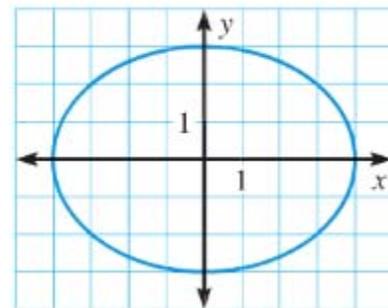
Ex 1:

Ex 2:

Vertical Line Test:

D:

R:



D:

R:

Function Notation:

Linear Function:

Identify the domain and range:

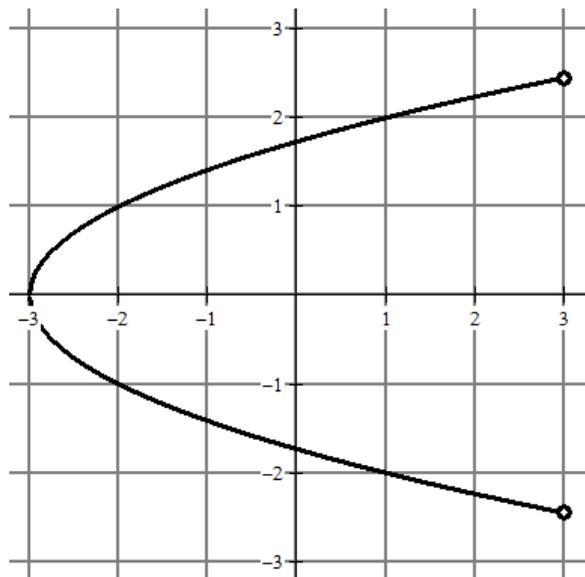
Find the following:

$f(-2) =$

$f(-3) =$

x when $f(x) = 1$

Is the relation a function?



Identify the domain and range:

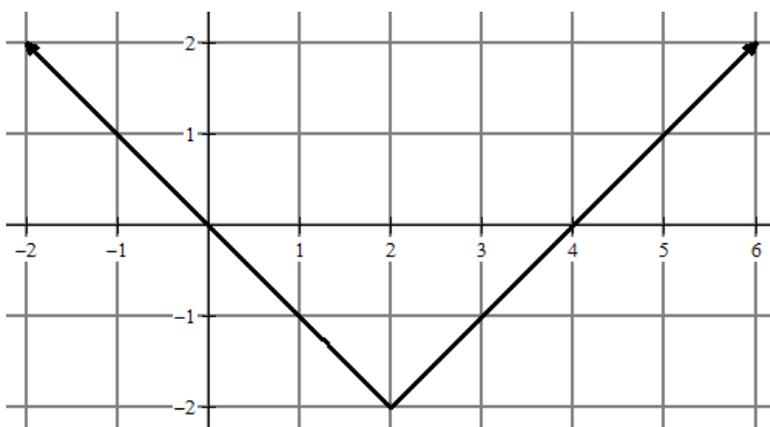
Find the following:

$f(3) =$

$f(-2) =$

x when $f(x) = 1$

Is the relation a function? Is it linear?



Identify the domain and range:

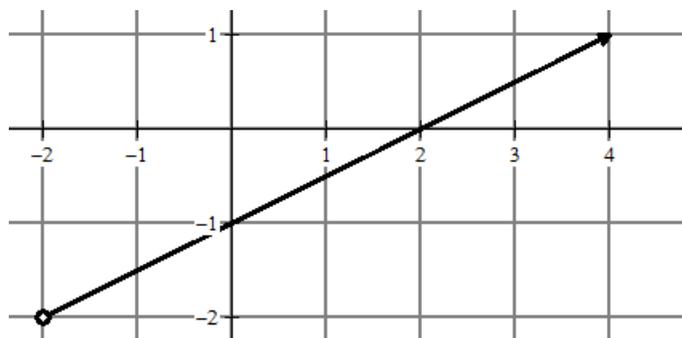
Find the following:

$f(4) =$

$f(-1) =$

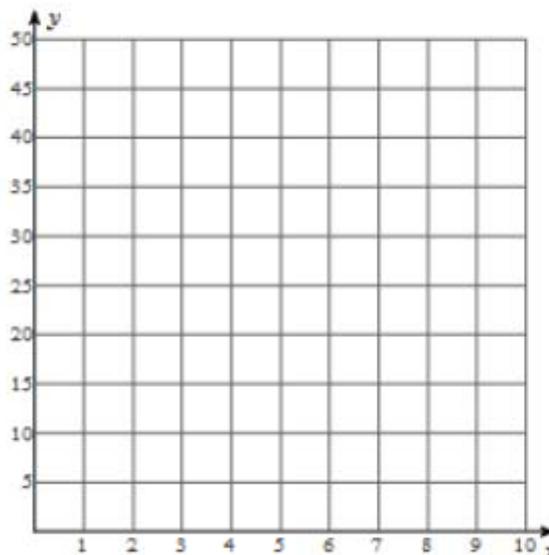
x when $f(x) = 0$

Is the relation a linear function?



Mr. Bean notices a trend with how much his movies tend to make and comes up with a function to describe it. $p(w) = 30.5 + 1.5w$, where p is the profit (in millions of dollars) and w is the number of weeks. Of course this function only applies between the 3rd and 10th weeks that his movies are out.

- Graph the function and determine a reasonable domain and range.
- About how much will Mr. Bean make in 5.5 weeks?
- How long will it take Mr. Bean to make \$44 million



YOU TRY

Identify the domain and range:

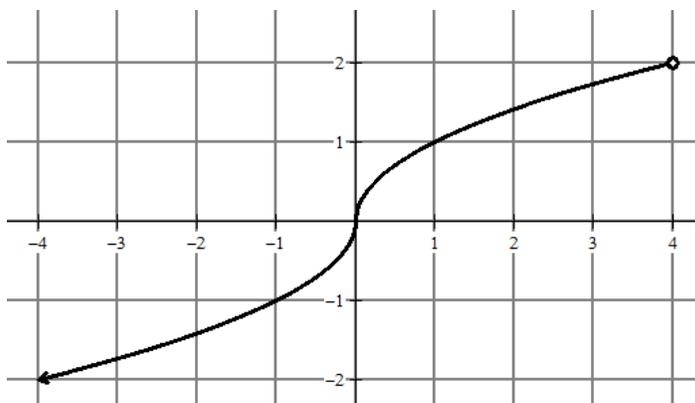
Find the following:

$f(-1) =$

$f(0) =$

x when $f(x) = -1$

Is the relation a linear function?



Summary:

Practice Problems 2.1

1) Domain:

2) Range:

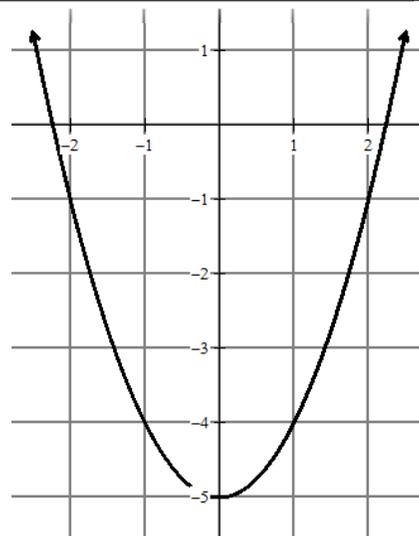
3) Find $f(1)$

4) Find $f(0)$

5) Find x , when $f(x) = -1$

6) Is the relation a function? Why or why not?

7) Is it a linear function?



8) Domain:

9) Range:

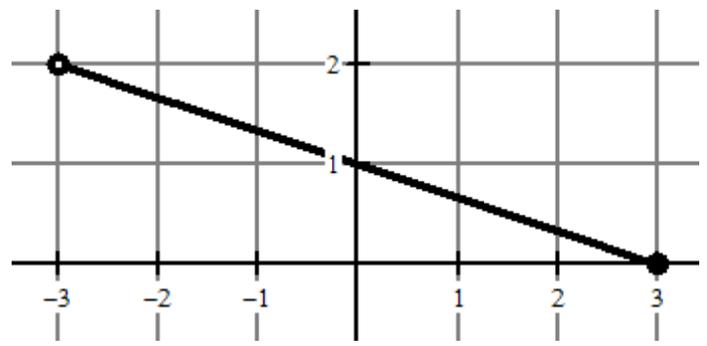
10) Find $f(0)$

11) Find $f(-3)$

12) Find x , when $f(x) = 1$

13) Is the relation a function? Why or why not?

14) Is it a linear function?



15) Domain:

16) Range:

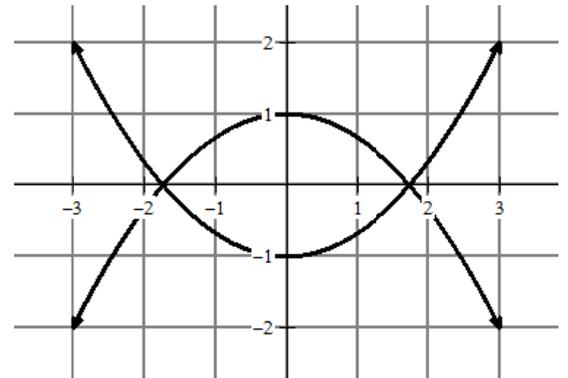
17) Find $f(-3)$

18) Find $f(0)$

19) Find x , when $f(x) = -2$

20) Is the relation a function? Why or why not?

21) Is it a linear function?



22) Domain:

23) Range:

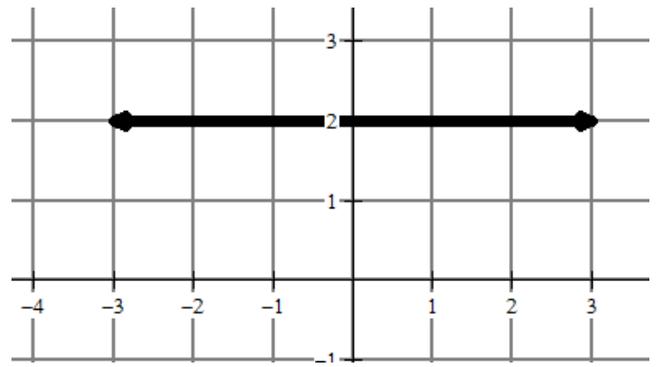
24) Find $f(-3)$

25) Find $f(0)$

26) Find x , when $f(x) = -2$

27) Is the relation a function? Why or why not?

28) Is it a linear function?



29) Domain:

30) Range:

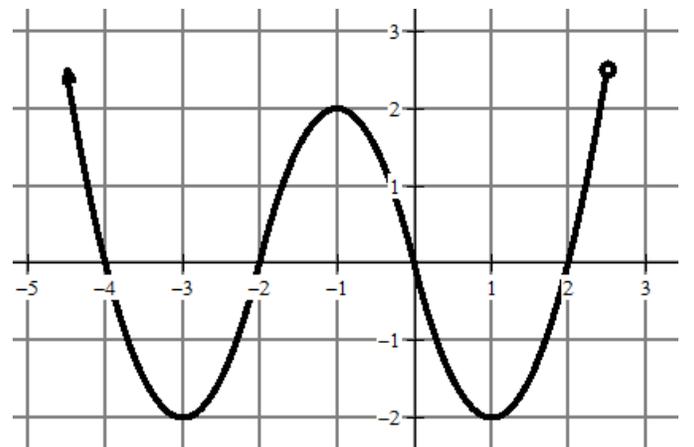
31) Find $f(-3)$

32) Find $f(0)$

33) Find x , when $f(x) = -2$

34) Is the relation a function? Why or why not?

35) Is it a linear function?



Directions: Find $f(x)$ or x for each given situation.

36) $f(x) = 3x - 8$; find x when $f(x)$ is 13

37) $f(x) = |x + 4| - 8$; find $f(-9)$

38) $f(x) = -2x^2 - 4$; find $f(-2)$

39) $f(x) = 5x - 3$; find x when $f(x) = 32$

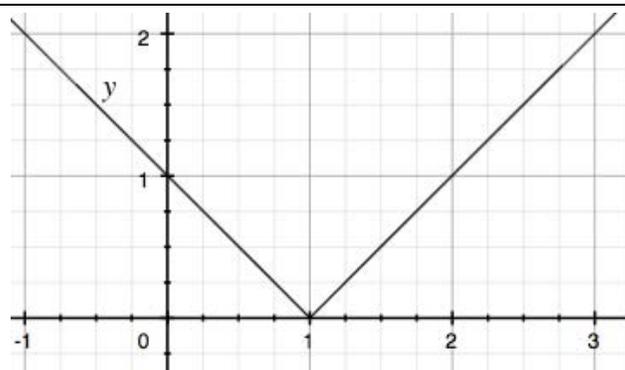
Algebra Skillz

1) Find the y-intercept(s)

2) Find the x-intercept(s)

3) Find $f(-1) =$

4) Find x when $f(x) = 1$



5) Simplify: $5\sqrt{18}$

6) Simplify: $3\sqrt{50}$

7) Solve: $\frac{21}{x} + 10 = 13$

8) Factor: $x^2 - 13x + 42$

SAT PREP Below are sample SAT questions. The SAT is the main standardized test that colleges look at for admission. One is multiple choices; the other is free response where you must grid in your answer. Blow it up.

MULTIPLE CHOICE

For which value of the following functions is $f(5) < f(-5)$?

- (A) $f(x) = 2x^2$
- (B) $f(x) = 2$
- (C) $f(x) = \frac{2}{x}$
- (D) $f(x) = 2 - x^3$
- (E) $f(x) = x^4 + 2$

GRID IN

If $f(x) = 2x^3 - 2$, what is the value of $f(-2)$?

•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

2.1 Application and Extensions

1) Domain:

2) Range:

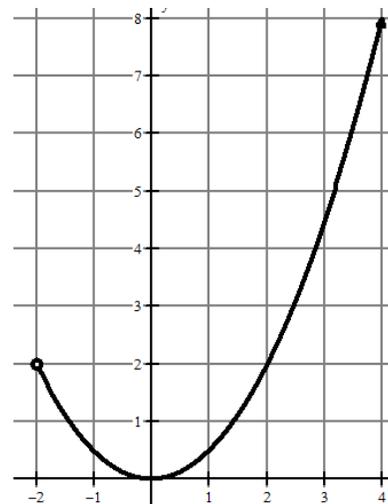
2) Find $f(-3)$

4) Find $f(0)$

5) Find x , when $f(x) = -1$

6) Is the relation a function? Why or why not?

7) Is it a linear function?



Use the World Population Graph at the right to answer the following questions. Be sure that you LABEL all your answers.

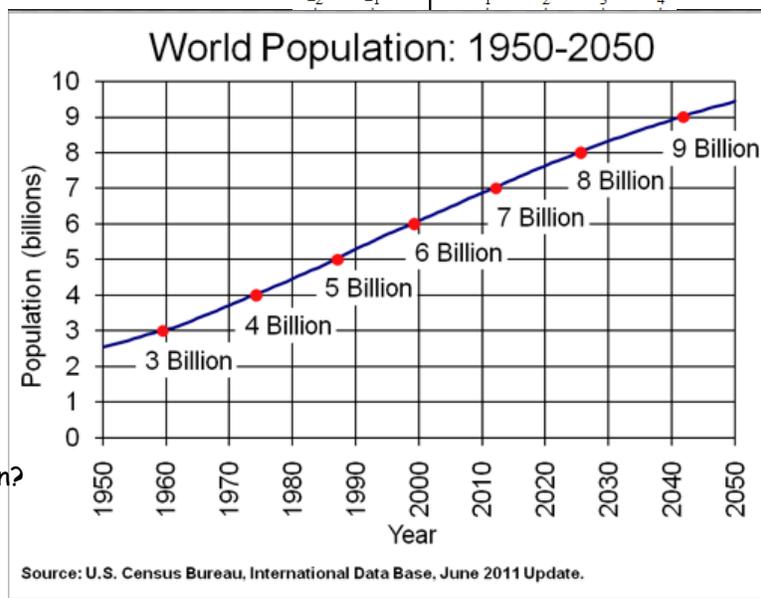
8) What is the domain of the graph?

9) What is the range of the graph?

10) What is $f(1960)$? What does it mean?

11) What is approximately $f(2050)$? What does it mean?

12) What is x when $f(x) = 6$? What does it mean?



13) Mr. Bean's new movie is a bust its first week out. However, once people find out how funny it is more people go to see it. In fact Mr. Bean makes a function to describe it. $p(w) = 2.4 + 5.5w$, where p is the profit (in millions of dollars) and w is the number of weeks. Of course this function only applies between the 2nd and 8th weeks that his movies are out.

a) Graph the function and determine a reasonable domain and range.

b) About how much will Mr. Bean make in 6.5 weeks?

c) How long will it take Mr. Bean to make \$40.9 million

d) Can you use the function to determine how much money the movie made its first week? Why or why not?

