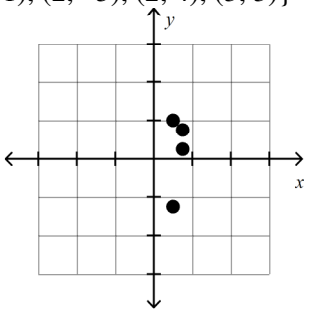
Name: _____ Class: _____ Date: _____ ID: A

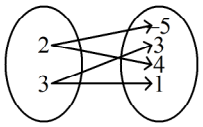
Algebra Unit 2--Relations and Functions Study Guide

Express each relation as a graph and a mapping. Then determine the domain and range.

1 {(3, 1), (2, –5), (2, 4), (3, 3)}

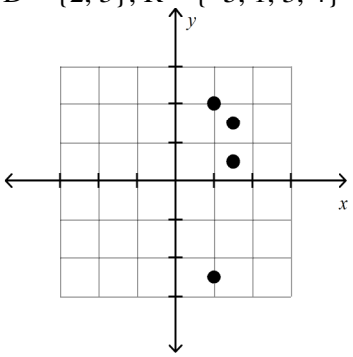
A

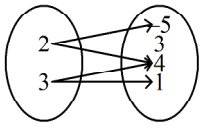




D = {2, 3}; R = {–5, 1, 3, 4}

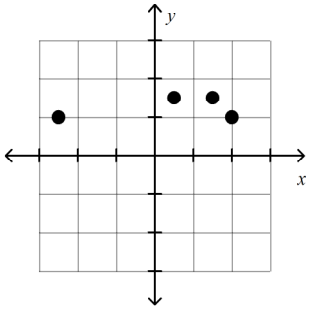
B

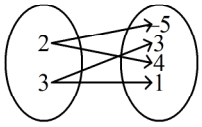




D = {2, 3}; R = {–5, 1, 3, 4}

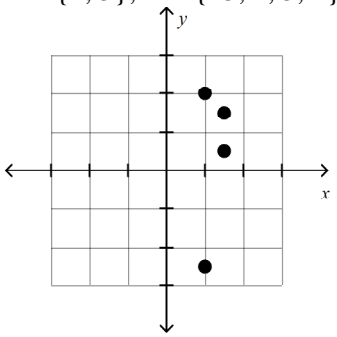
C

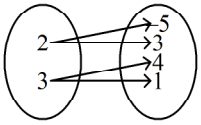




D = {2, 3}; R = {–5, 1, 3, 4}

D

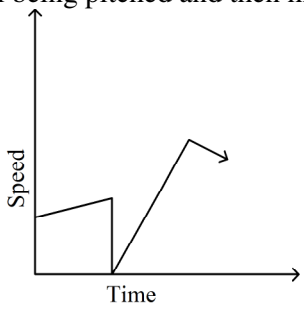




D = {2, 3}; R = {–5, 1, 3, 4}

2 Identify the graph that displays the speed of a baseball being pitched and then hit by the batter.

A



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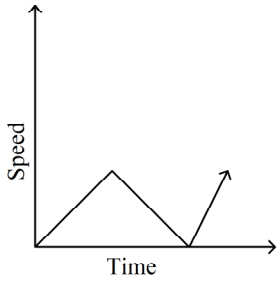

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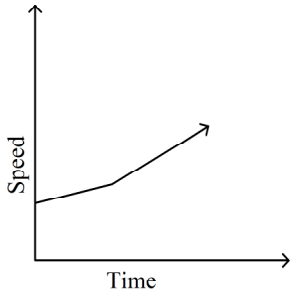
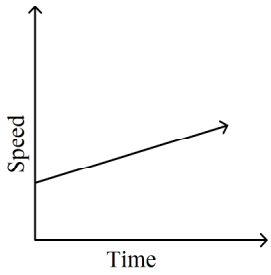
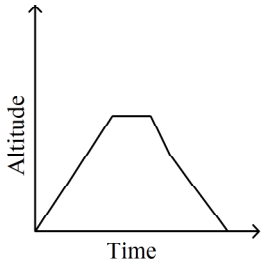


D

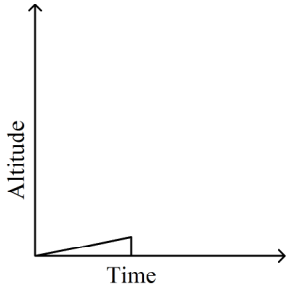


3 Identify the graph that displays the altitude of a skydiver as he is taken up in a plane and then jumps.

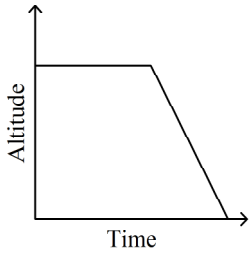
A



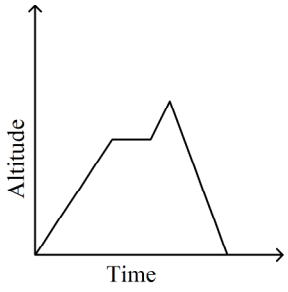
B



C

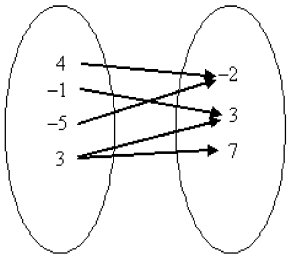


D

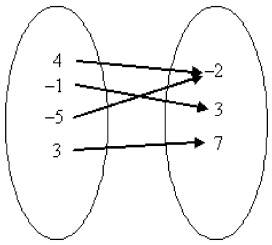


4 Which relation is a function?

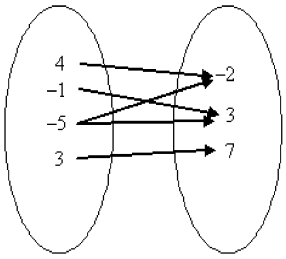
A



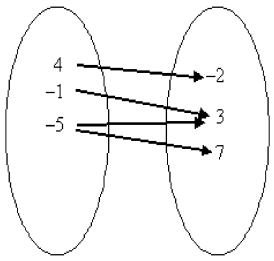
B



C



D



5 Which relation is a function?

A

x	y
3	8
5	10
6	6
9	−2

B

x	y
3	8
5	10
3	6
9	−2

C

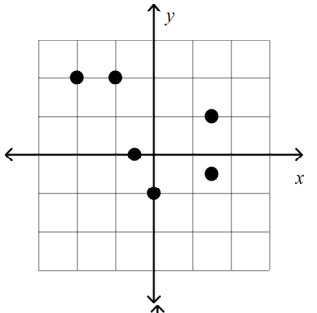
x	y
3	8
5	10
6	6
5	−2

D

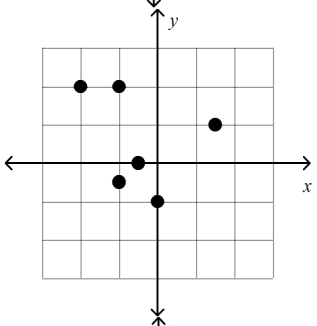
x	y
6	8
5	10
6	6
9	−2

6 Which relation is a function?

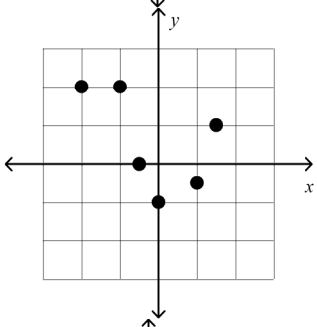
A



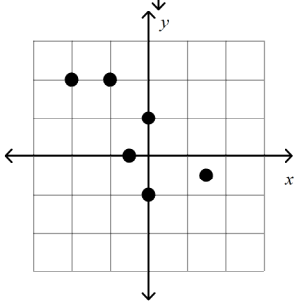
B



C



D



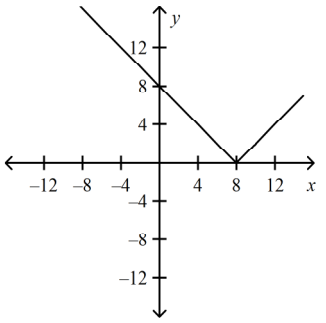
7 Which relation is a function?

A {(5, 3), (2, 8), (–5, –1), (4, 7), (2, 1)}
B {(5, 3), (2, 8), (–5, –1), (4, 7), (5, 7)}
C {(–5, 3), (2, 8), (–5, –1), (4, 7), (2, 2)}
D {(5, 3), (2, 8), (–5, –1), (4, 7), (–2, 1)}

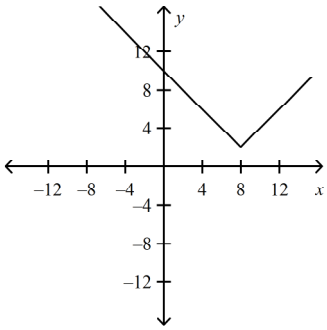
Find the graph of the function.

8 $f(x) = |x - 8|$

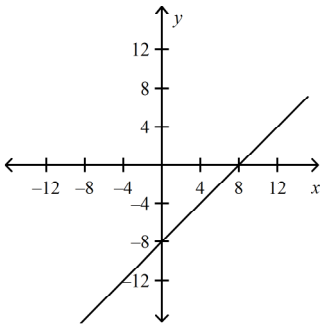
A



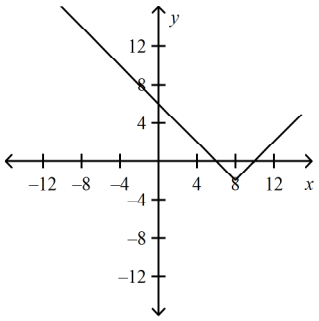
B



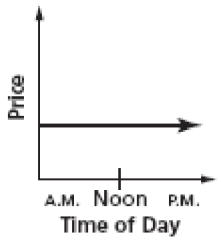
C



D



9 Which statement best describes the graph?



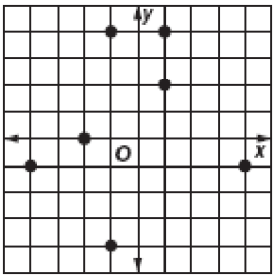
A The price of a share of the company's stock increased.

B The price of a share of the company's stock decreased.

C The price of a share of the company's stock did not change.

D The price of a share of the company's stock increased in the morning and decreased in the afternoon.

Use the graph to answer each question.



10 Which is a true statement about the relation?

A The relation is a linear function.

B The value of x increases as y decreases.

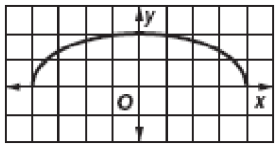
C The value of x increases as y increases.

D The relation is not a function.

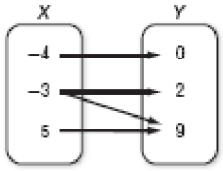
11 What is the domain of the relation?

12 Determine which relation is *not* a function.

A



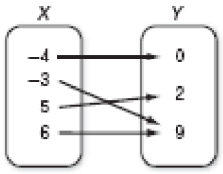
B



C

x	−2	0	1	3
y	0	0	2	1

D



Use the following information to answer the following questions.

The number of seats in each row of a theater form an arithmetic sequence, as shown in the table.

Row	1	2	3	4
Number of Seats	8	14	20	26

13 How many seats are in the 12th row?

A 68

B 74

C 96

D 114

14 What is the range of $f(x) = |3x + 1|$?

A all reals

B all positive reals

C all reals ≥ 1

D all reals $\geq \frac{1}{3}$

15 **BIOLOGY** If $y = 10(2.5)^t$ represents the number of bacteria in a culture at time t, how many will there be at time $t = 6$?

A 2441

B 244

C 24

D none

Find the term(s) of the geometric sequence.

16 Find the next 3 terms in the geometric sequence –3, 6, –12, 24...

17 The first term of a geometric sequence is 80 and the common ratio is $\frac{1}{2}$. What is the 6th term of the sequence?

18 The first term of a geometric sequence is 5 and the common ratio is 3. What is the 12th term of the sequence?

Find the next three terms of the arithmetic sequence.

19 55, 47, 39, 31, . . .

20 What is the ninth term of the geometric sequence 3, 9, 27, . . .?

21 Which is the equation for the nth term of the geometric sequence –2, 8, –32, . . . ?

22 If $f(x) = 2[x]$, find $f(-\frac{1}{4})$.

Determine whether the sequence is an arithmetic sequence. If it is, state the common difference.

23 5, 0, –5, –10, . . .

24 $f(x) = 5x + 2$, find $f(3)$.

25 If $g(x) = x^2 + 4x - 5$, find $g(-4)$.