

HW

Relations and Functions

1 What is the range of this relation?
 $\{(1,2), (3,4), (5,6), (7,8), (7,10)\}$

- A {1, 3, 5, 7, 8}
- B {5, 6, 7, 8, 10}
- C {2, 4, 6, 7, 8}
- D {2, 4, 6, 8, 10}

2 Which relation is a function?

- F $\{(1,3), (2,2), (3,3), (3,4)\}$
- G $\{(10,15), (20,40), (20,45), (30,50)\}$
- H $\{(12,28), (14,28), (16,30), (18,32)\}$
- J $\{(22,11), (24,12), (26,12), (26,13)\}$

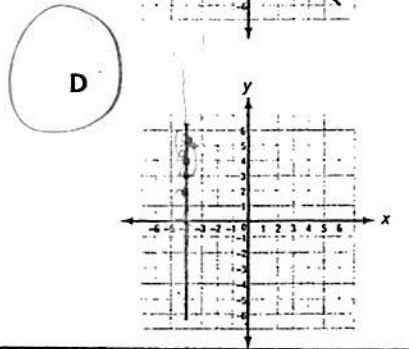
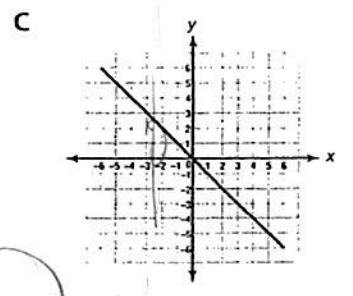
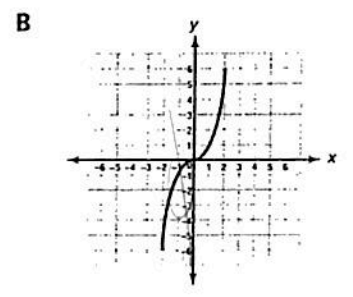
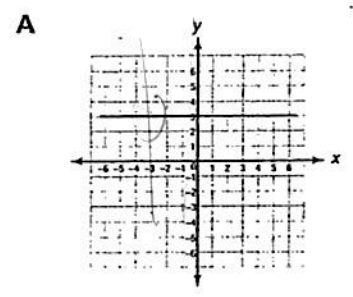
3 Which relation is a function?

- A $\{(-1,1), (2,8), (-1,-1), (-2,-8)\}$
- B $\{(1,2), (2,8), (3,18), (2,32)\}$
- C $\{(-3,9), (-2,4), (2,4), (3,9)\}$
- D $\{(1,5), (2,10), (-2,10), (1,15)\}$

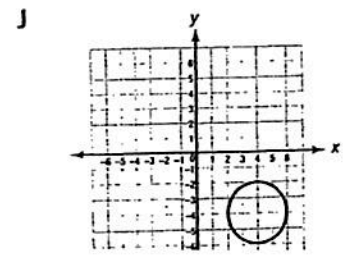
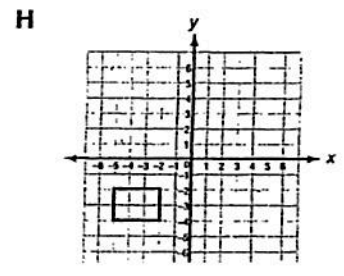
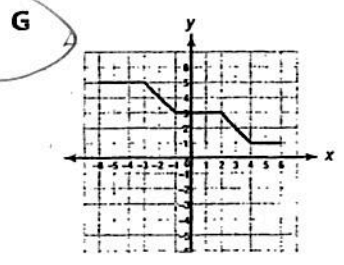
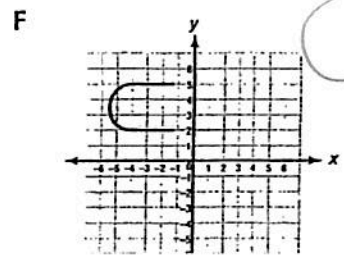
4 Which relation is not a function?

- F $\{(\frac{1}{2}, \frac{1}{3}), (\frac{1}{4}, \frac{1}{5}), (\frac{1}{6}, \frac{1}{7}), (\frac{1}{8}, \frac{1}{9})\}$
- G $\{(\frac{1}{2}, \frac{2}{2}), (\frac{1}{3}, \frac{3}{2}), (\frac{2}{3}, \frac{2}{3}), (\frac{3}{3}, \frac{4}{3})\}$
- H $\{(\frac{1}{2}, \frac{1}{5}), (\frac{3}{2}, \frac{1}{6}), (\frac{4}{2}, \frac{1}{7}), (\frac{5}{2}, \frac{1}{8})\}$
- J $\{(\frac{1}{2}, \frac{1}{4}), (\frac{1}{4}, \frac{1}{8}), (\frac{4}{8}, \frac{1}{16}), (\frac{4}{16}, \frac{1}{32})\}$

5 Which graph below does not show a function?



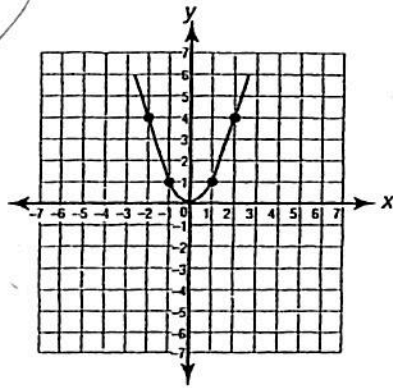
6 Which graph shows a function?



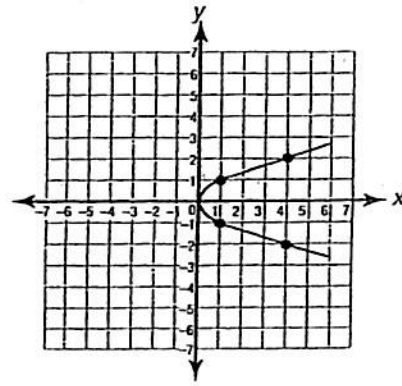


Which graph shows a function?

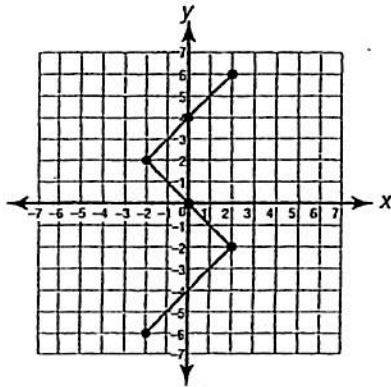
A



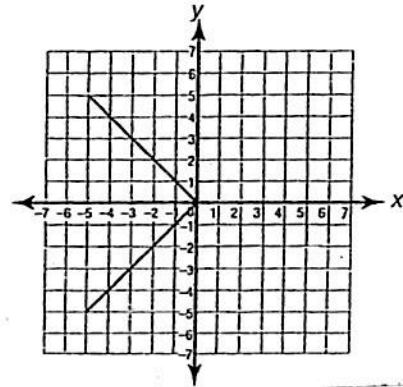
C



B



D



8

Write the domain of this relation.

$\{(5,25), (6,36), (-5,25), (-6,36)\}$

Answer: $\{-6, -5, 5, 6\}$

9

Write the range of this relation.

$\{(2,20), (2,-40), (-2,10), (-2,-30)\}$

Answer: $\{-40, -30, 10, 20\}$

10

Part A

Determine if the relation below is a function. Explain your answer.

$\{(-3,8), (-2,3), (-1,0), (0,-1), (1,0), (2,3), (3,8)\}$

Answer: Yes! B/c each element of the domain

corresponds to one and only one element of the range.

Part B

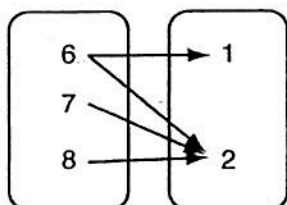
How could you explain your answer to Part A using a graph?

you would plot the points + then use the vertical line test + it wouldn't go through more than one point. therefore it would be a function.

Problem Solving

Give the domain and range of each relation and tell whether it is a function.

- 11) The mapping diagram shows the ages x and grade level y of four children. 12)



Age x	Shoe Size y
6	8
9	10
12	10
15	10.5
18	11

D: $\{6, 7, 8\}$
 R: $\{1, 2\}$
 F: No! $(6, 1), (6, 2)$

D: $\{6, 9, 12, 15, 18\}$
 R: $\{8, 10, 10.5, 11\}$
 F: yes

- 13) The list represents the number of cars sold and the bonus received by the salespeople of a car dealership.

$\{(1, 50), (2, 50), (3, 100), (4, 150)\}$
 D: $\{1, 2, 3, 4\}$
 R: $\{50, 100, 150\}$
 F: yes

- 14) A 2-inch-tall plant grows at a rate of 2.5 inches every week for 5 weeks. Let x represent the number of weeks and y represent the height of the plant.

D: $\{0, 1, 2, 3, 4, 5\}$
 R: $\{2, 4.5, 7, 9.5, 12, 14.5\}$
 F: yes

Use the graph below to answer questions 5–6. A conservation group has been working to increase the population of a herd of Asian elephants. The graph shows the results of their efforts. Select the correct answer.

- 15) Which relation represents the information in the graph?
 A $\{(1, 4.5), (2, 6), (3, 10), (4, 14.5)\}$
 B $\{(1, 5), (2, 6), (3, 10), (4, 15)\}$
 C $\{(4.5, 1), (6, 2), (10, 3), (14.5, 4)\}$
 D $\{(5, 1), (6, 2), (10, 3), (15, 4)\}$
- 16) What is the range of the relation shown in the graph?

- F $\{0, 1, 2, 3, 4, 5\}$
 G $\{1, 2, 3, 4\}$
 H $\{4.5, 6, 10, 14.5\}$
 J $\{5, 6, 10, 15\}$

