Directions: Please choose the best answer choice for each of the following questions.

1. What is the domain of the relation given in the table below?

| x	3	5	6	7
y	4	7	10	13

   A. all real numbers
   B. $\{3,5,6,7\}$
   C. $x \geq 3$
   D. $3 \leq x \leq 7$

Answer Choice Rationale

A. This answer mistakes the domain as all real numbers instead of all the *x* values.

B. Correct answer.

C. The domain includes all numbers greater than or equal to 3, but not all numbers greater than or equal to 3 are in the domain.

D. The domain does not include all numbers from 3 to 7.

ItemID A2K.1021472
Correct B
Standard(s) MA.9-12.MA.912.A.2.4

2. A section of a parabola is graphed below.
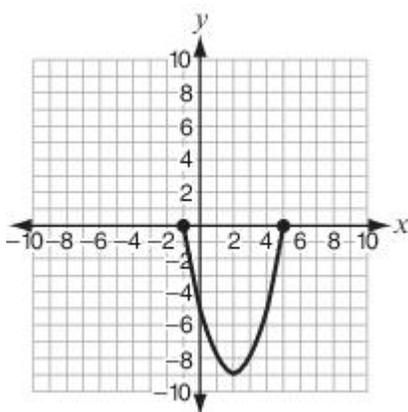
   Which inequality describes the domain of this function?

   A. $x \geq -1$
   B. $x \geq -9$
   C. $-1 \leq x \leq 5$
   D. $-9 \leq x \leq 0$

Answer Choice Rationale

A. This answer only considers one portion of the graph and does not account for all restrictions on the domain.

B. This answer is the result of determining the range rather than the domain of the function and of not considering the restrictions.

C. Correct answer

D. This answer is the result of determining the range of the function rather than the domain.

ItemID A2K.1019994
Correct C
Standard(s) MA.9-12.MA.912.A.2.4

3. For a special event at the Center City Arena, up to 5 tickets can be purchased. This table shows the total cost, $f(x)$, to buy x tickets for the event.

x	$f(x)$
1	$8.00
2	$16.00
3	$24.00
4	$32.00
5	$40.00

   What is the range of this function?

   A. {1, 2, 3, 4, 5}
   B. {$8.00 per ticket}
   C. {(1, 8), (2, 16), (3, 24), (4, 32), (5, 40)}
   D. {$8.00, $16.00, $24.00, $32.00, $40.00}

Answer Choice Rationale

A. This is the domain of the function.
B. This is the constant in the function.
C. This answer gives all the ordered pairs of the function. These ordered pairs represent the range and the domain instead of only the range.
D. Correct answer

ItemID A2K.1019950
Correct D
Standard(s) MA.9-12.MA.912.A.2.4

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4.   What is the domain, D , and the range, R , of the relation defined by $\{(3, 7), (3, 5), (3, 6), (3, 2)\}$?

    A. $D = \{2, 3, 5, 6, 7\}\ R = \{2, 3, 5, 6, 7\}$

    B. $D = \{2, 5, 6, 7\}\ R = \{3\}$

    C. $D = \{3\}\ R = \{2, 5, 6, 7\}$

    D. $D = \{3\}\ R = \{2, 7\}$

Answer Choice Rationale

    A.   No rationale available

    B.   No rationale available

    C.   Correct

    D.   No rationale available

ItemID A2KC.1134412
Correct C
Standard(s) MA.9-12.MA.912.A.2.4

    D.   This answer mistakes the range as the range of values on the *t*-axis. This is the domain of the function instead of the range.

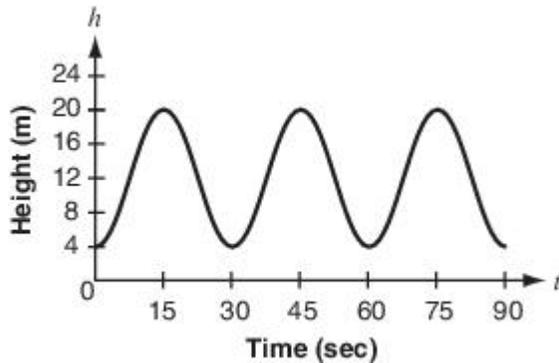**ItemID** A2K.1012197
Correct A
Standard(s) MA.9-12.MA.912.A.2.4

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5.   Dominic loves to ride the Ferris wheel at the amusement park. His height, h , on the rotating Ferris wheel over time, t , is shown in the graph below.

    Which BEST describes the range of the function graphed?

    A. $4 \le h \le 20$

    B. $4 \le h \le 24$

    C. $0 \le t \le 30$

    D. $0 \le t \le 90$

Answer Choice Rationale

    A.   Correct answer.

    B.   This answer mistakes the upper value of the range as the highest value on the *h*-axis.

    C.   This answer mistakes the range as the values on the *t*-axis for one wave.

Stop! You have finished this exam.