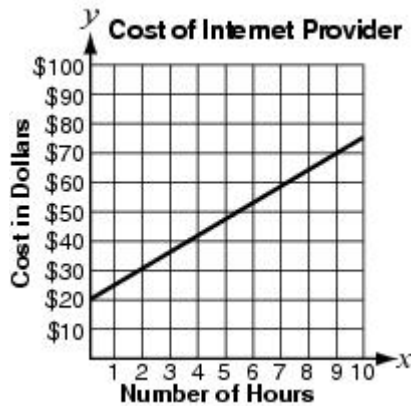


**Directions:** Please choose the best answer choice for each of the following questions.

1. If  $x$  represents the number of hours that Jason uses the Internet and  $y$  represents the cost that he is charged by his Internet provider, which function best represents this situation?



- A.  $y = \$20x$
- B.  $y = \$5x$
- C.  $y = \$20x + \$5$
- D.  $y = \$5x + \$20$

**Answer Choice Rationale**

- A. This answer uses the  $y$ -intercept as the slope.
- B. This answer uses the slope correctly, but does not include the  $y$ -intercept in the equation.
- C. This answer reverses the slope and the  $y$ -intercept.
- D. Correct answer.

ItemID A2K.1011317  
 Correct D  
 Standard(s) MA.9-12.MA.912.A.3.11

2. This table shows the student populations at Stonington High School from 1994 to 2004.

**Stonington High School**

Years after 1994	Population
0	889
2	917
4	954
6	968
8	1012
10	1045

Assuming the trend in this table continues, which equation could be used to estimate the student population  $n$  years after 1994?

- A.  $y = 5n + 890$
- B.  $y = 15n + 890$
- C.  $y = 30n + 890$
- D.  $y = 50n + 890$

**Answer Choice Rationale**

- The average annual change in student population is closer to 15. This equation
- A. assumes a much smaller increase of 5 students each year. The best equation to fit the data and make an estimate is  $y = 15n + 890$ .
  - B. Correct answer.  
 The average change in student population every *two* years is about 30 students. However, the equation needs to represent the *annual* change in population. Since 30 divided 2 is 15, the slope of the line of best fit is 15. The best choice is  $y = 15n + 890$ .
  - C.

Go on to the next page »

- Using this equation assumes an annual increase of 50 students. Looking at the data in the table, the average annual increase is closer to 15 students. Therefore, the line of best fit should have a slope of 15. The best choice is  $y = 15n + 890$ .
- D.

ItemID A2K.1064768  
 Correct B  
 Standard(s) MA.9-12.MA.912.A.3.11

**Answer Choice Rationale**

- A. This equation works for year 1, but does not work for all the years in the table.
- B. Correct answer
- C. This equation confuses the variables  $y$  and  $r$ , and writes an equation that only works for the first set of values in the table.
- D. This equation confuses the variables  $y$  and  $r$ .

3. Chang and his family raise rabbits. At the end of each year, Chang records the number of rabbits the family has. The table shows this information.

ItemID A2K.1044962  
 Correct B  
 Standard(s) MA.9-12.MA.912.A.3.11

Year	Number of Rabbits
1	35
2	58
3	81
4	104

Which equation relates the number of rabbits ( $r$ ) to the year ( $y$ )?

- A.  $r = 12y + 23$
- B.  $r = 23y + 12$
- C.  $y = 12r + 23$
- D.  $y = 23r + 12$
4. The table shows the number of hours Tim and Stephen have practiced their piano lessons at the end of each week. Let  $T$  represent the number of hours Tim practices and let  $S$  represent the number of hours Stephen practices. If they both continue to practice at the same rate, which equation could be used to correctly predict the number of hours Stephen will have practiced his piano lessons when Tim has practiced for 11 hours?

Week	Tim	Stephen
1	1	5
2	3	11
3	5	17
4	7	23

- A.  $S = 29$
- B.  $S = 3T + 2$
- C.  $S = 2T + 9$
- D.  $S = 2T + 11$

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**Answer Choice Rationale**

- A. No rationale available
- B. Correct
- C. No rationale available
- D. No rationale available

<p><b>ItemID</b> saltsmad.3059 <b>Correct</b> B <b>Standard(s)</b> MA.9-12.MA.912.A.3.11</p>
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5. The table below shows how old Marsha and Tony were in several different years. If  $T$  represents Tony's age and  $M$  represents Marsha's age, which equation could be used to correctly predict Tony's age when Marsha is 20 years old?

Year	Marsha	Tony
2000	6	10
2002	8	12
2004	10	14
2006	12	16

- A.  $T = 20 - M$   
B.  $T = M + 4$   
C.  $T + M = 4$   
D.  $T + 16 = 20M$

**Answer Choice Rationale**

- A. No rationale available  
B. Correct  
C. No rationale available  
D. No rationale available

ItemID saltsmad.3058

Correct B

Standard(s) MA.9-12.MA.912.A.3.11

**Stop! You have finished this exam.**