

Algebra 1 Quick quiz 03222023

Question 1

This month Doris is scheduled to work 5 fewer hours than twice the number of hours she worked last month. Last month Doris worked h hours. Which expression represents the number of hours Doris is scheduled to work this month?

- A. $2h - 5$
- B. $5 - 2h$
- C. $2(h - 5)$
- D. $2(5 - h)$

Question 2

Which expression is equivalent to $2x(x^2 + 9) - 2x$?

- A. $x^2 + 9$
- B. $2x^3 + 16x$
- C. $3x^2 - 2x + 9$
- D. $2x^3 - 2x + 9$

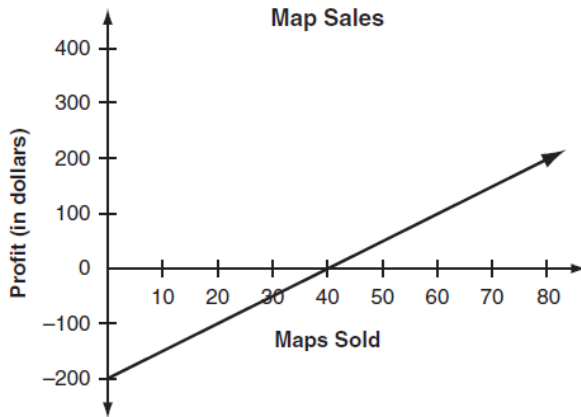
Question 3.

The expression $(m - 3)^2$ is equivalent to

- | | |
|---------------|--------------------|
| (1) $m^2 + 9$ | (3) $m^2 - 6m + 9$ |
| (2) $m^2 - 9$ | (4) $m^2 - 6m - 9$ |

Question 4.

Brian started a business selling maps of hiking trails. His initial expense was \$200. The graph below shows Brian's profit from selling different numbers of maps. [profit = revenue - expense]



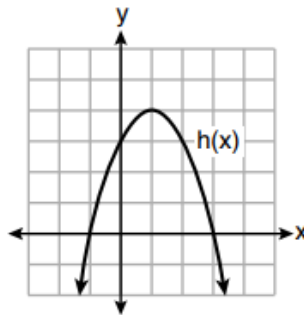
What does the x -intercept of the graph represent?

- A. the amount of revenue before any maps were sold
- B. the amount of revenue when all the maps were sold
- C. the number of maps sold when the revenue was equal to the expense
- D. the number of maps sold when the revenue was greater than the expense

Question 5.

Four quadratic functions are shown below.

x	$f(x)$
-4	-4
-2	4
-1	5
0	4
2	-4



$$g(x) = -(x - 4)^2 + 5$$

$$j(x) = -\frac{1}{2}x^2 + x + 4$$

Which statement is true?

- (1) The maximum of $f(x)$ is less than the maximum of $j(x)$.
- (2) The maximum of $g(x)$ is less than the maximum of $h(x)$.
- (3) The maximum of $f(x)$ equals the maximum of $g(x)$.
- (4) The maximum of $h(x)$ equals the maximum of $j(x)$.

Question 6.

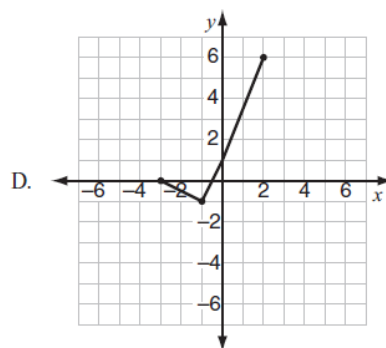
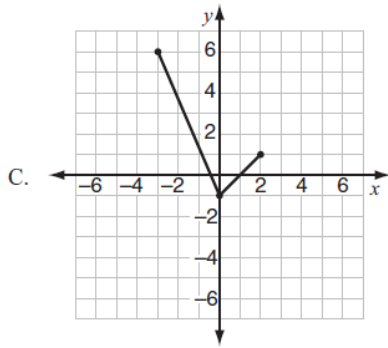
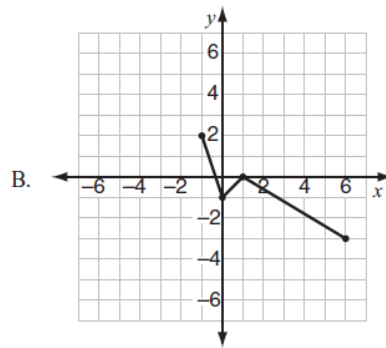
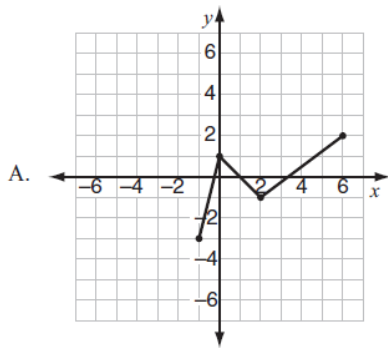
Describe the transformations performed on the graph of $f(x) = x^2$ to obtain the graph of $g(x)$ when $g(x) = (x - 3)^2 - 4$.

Question 7.

Bert graphs a function.

- The domain of the function is $-3 \leq x \leq 2$.
- The range of the function is $-1 \leq y \leq 6$.
- The y -intercept of the function is 1.

Which graph could represent Bert's function?



Question 8.

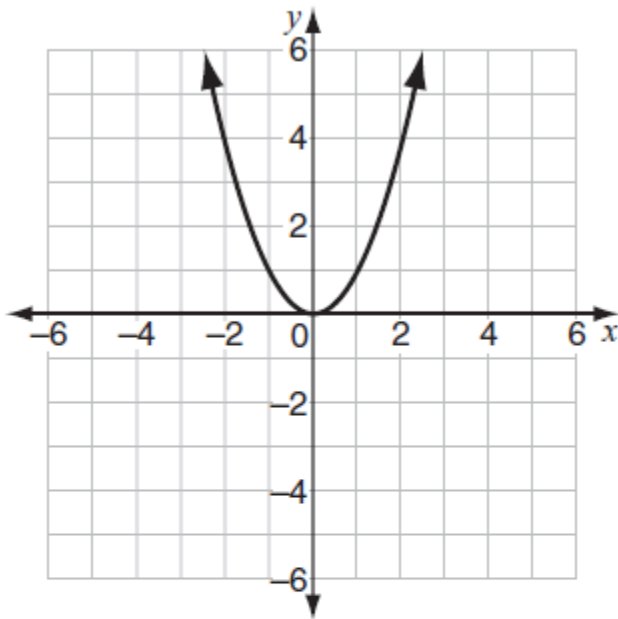
Solve $6x^2 + 5x - 6 = 0$ algebraically for the exact values of x .

Question 9.

Factor the expression $x^4 - 36x^2$ completely.

Question 10.

Look at this graph of $y = x^2$.



If $y = x - 2$ is graphed on the same coordinate plane, at how many points would the two graphs intersect?

- A. 0
- B. 1
- C. 2
- D. 3

Bonus Question

Question 11

At the beginning of an experiment, the number of bacteria in a colony was counted at time $t = 0$. The number of bacteria in the colony t minutes after the initial count is modeled by the function $b(t) = 4(2)^t$. Which value and unit represent the average rate of change in the number of bacteria for the first 5 minutes of the experiment?

Select **all** that apply.

- A.** 24.0
- B.** 24.8
- C.** 25.4
- D.** 25.6
- E.** bacteria
- F.** minutes
- G.** bacteria per minute
- H.** minutes per bacteria