Algebra Quick Quiz 03302022

Question 1

A guitar manufacturer uses a computer-controlled machine to make electric guitars. The table below shows the total number of guitars made after 2, 4, 8, and 16 hours.

Hours (h)	Total Number of Guitars Made (g)
2	18
4	42
8	90
16	186

If g represents the total number of guitars made after h hours, which equation represents the pattern shown in the table?

A. $g = 12h - 6$

B. $g = 12h$

C. $g = 3h^2 - 6$

D. $g = 3h^2 + 6$

Question 2

What is the range of the function $f(x) = x^2 + 3$ if the domain is $\{-3, 0, 3\}$?

A. $\{3, 12\}$

B. $\{-6, 3, 12\}$

C. all real numbers

D. all real numbers greater than or equal to 3

Question 3.

The sum of three consecutive odd integers is 21. If x is the least of these odd integers, which equation **must** be true?

A. $3x = 21$

B. $3x + 3 = 21$

C. $3x + 4 = 21$

D. $3x + 6 = 21$

Question 4.

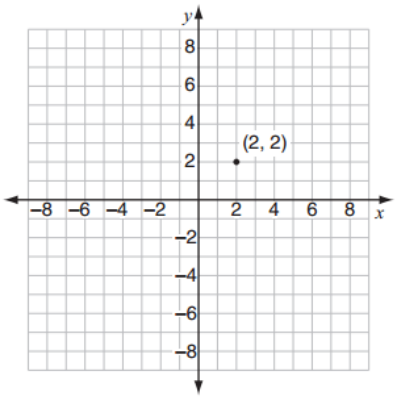
Look at this system of equations.

$$2y + 12 = 8x$$

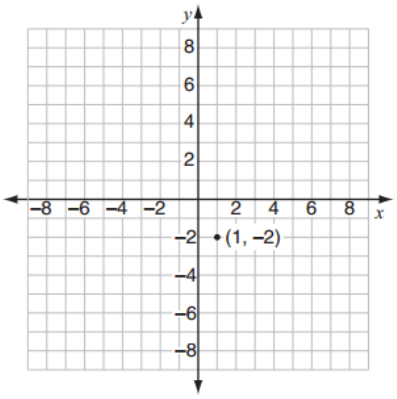
$$12x - 3y = 18$$

Which graph shows the solution set of the system of equations?

A.



B.



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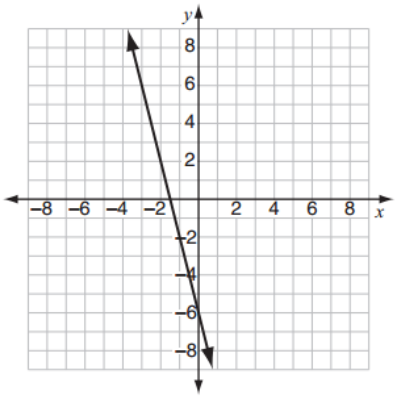
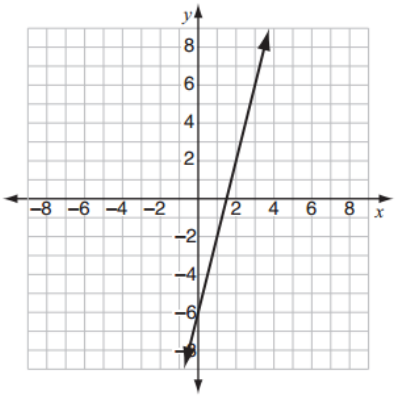
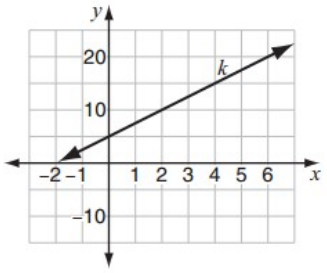


D.



Question 5.

Look at this graph.



What is the slope of line k?

Question 6.

Which expression is equivalent to $18x^2 - 50$?

(1) $2(3x + 5)^2$

(2) $2(3x - 5)^2$

(3) $2(3x - 5)(3x + 5)$

(4) $2(3x - 25)(3x + 25)$

Question 7.

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

A. $x^2 + 9$

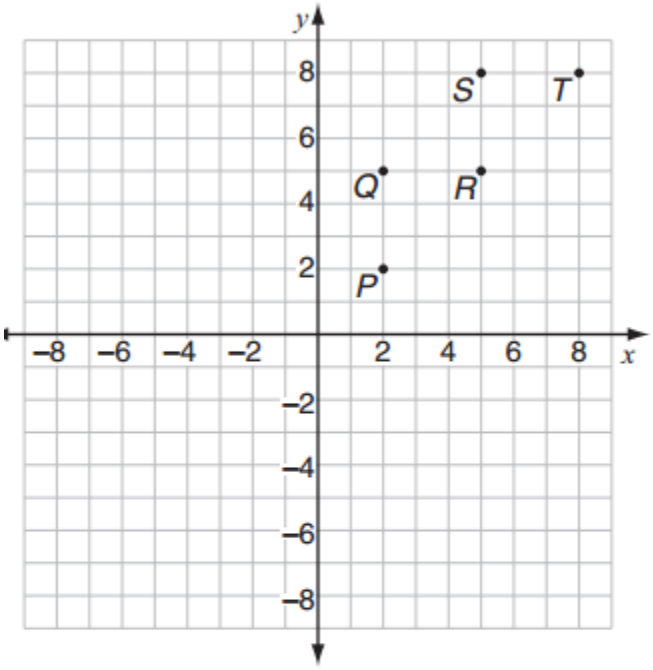
B. $2x^3 + 16x$

C. $3x^2 - 2x + 9$

D. $2x^3 - 2x + 9$

Question 8.

Look at this graph of a relation.



Which two points could be removed to make this relation a function?

A. points P and Q
B. points Q and R
C. points Q and T
D. points R and S

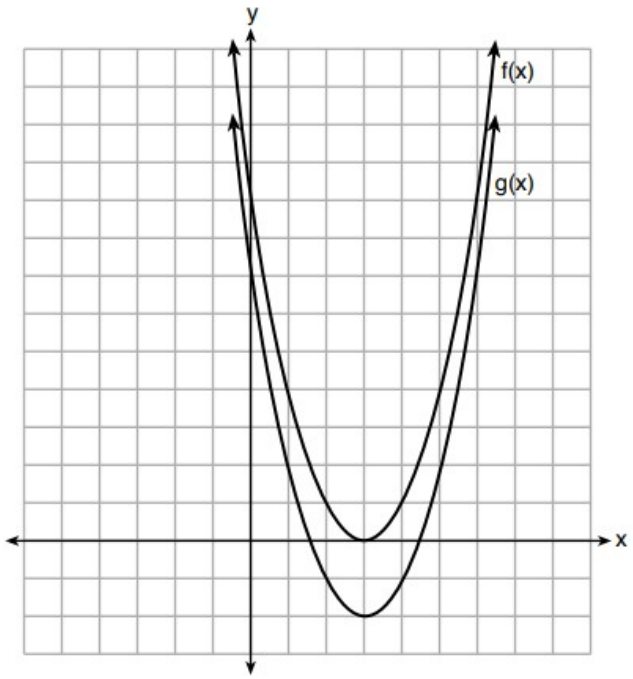
Question 9.

The zeros of the function $f(x) = x^3 - 9x^2$ are

(1) 9, only
(2) 0 and 9
(3) 0 and 3, only
(4) -3, 0, and 3

Question 10.

The functions $f(x) = x^2 - 6x + 9$ and $g(x) = f(x) + k$ are graphed below.



Which value of k would result in the graph of $g(x)$?

(1) 0
(2) 2
(3) −3
(4) −2

Bonus Question

Question 11a

The expression $x^2 - 10x + 24$ is equivalent to

(1) $(x + 12)(x - 2)$
(2) $(x - 12)(x + 2)$
(3) $(x + 6)(x + 4)$
(4) $(x - 6)(x - 4)$

Question 11b.

A coach will order baseball caps from one of two companies.

- Creative Caps charges a one-time fee of $50, plus $5 per baseball cap.
- Happy Hats charges a one-time fee of $30, plus $6 per baseball cap.

a. How much does Creative Caps charge for an order of 15 baseball caps?

b. Write an algebraic expression to represent the amount that Creative Caps charges for an order of x baseball caps.

c. The coach wants to buy baseball caps from the least expensive company. In terms of the number of baseball caps, when should the coach order the baseball caps from Creative Caps? Show your work or explain how you know.