Algebra Quick-Quiz-03252022

Question 1.

Given: $f(x) = \frac{2}{3}x - 4$ and $g(x) = \frac{1}{4}x + 1$

Four statements about this system are written below.

I. $f(4) = g(4)$

II. When $x = 12$, $f(x) = g(x)$.

III. The graphs of $f(x)$ and $g(x)$ intersect at (12,4).

IV. The graphs of $f(x)$ and $g(x)$ intersect at (4,12).

Which statement(s) are true?

(1) II, only

(2) IV, only

(3) I and IV

(4) II and III

Question 2

Which expression is equivalent to $(-4x^2)^3$?

(1) $-12x^6$

(2) $-12x^5$

(3) $-64x^6$

(4) $-64x^5$

Question 3.

If the parent function of $f(x)$ is $p(x) = x^2$, then the graph of the function $f(x) = (x - k)^2 + 5$, where $k > 0$, would be a shift of

(1) k units to the left and a move of 5 units up

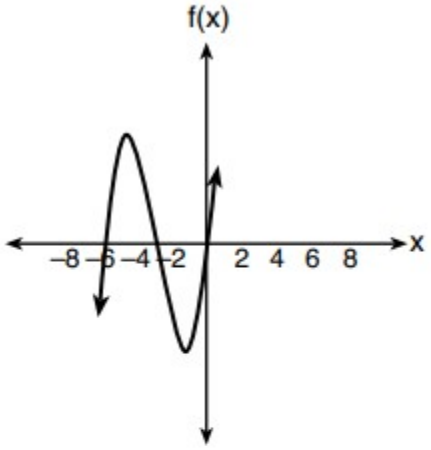
(2) k units to the left and a move of 5 units down

(3) k units to the right and a move of 5 units up

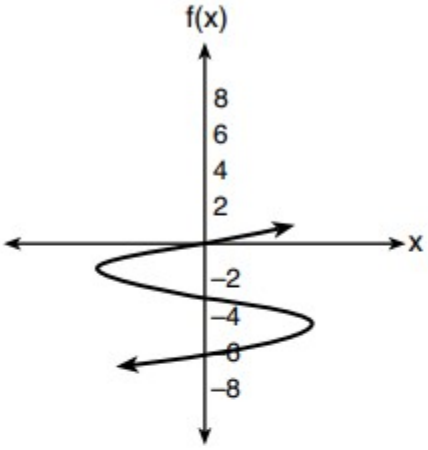
(4) k units to the right and a move of 5 units down

Question 4.

Which sketch represents the polynomial function $f(x) = x(x + 6)(x + 3)$?



(1)



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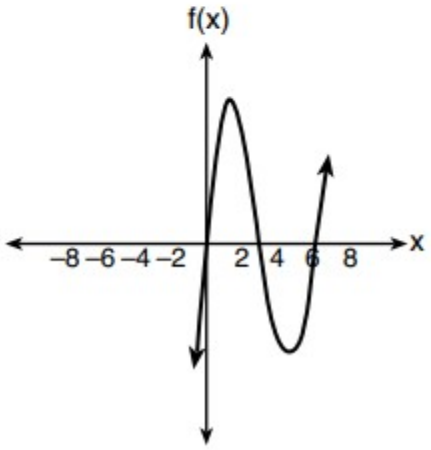

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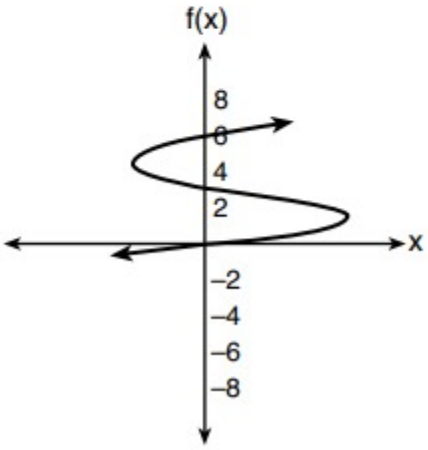


(4)

Question 5.

Which domain would be the most appropriate to use for a function that compares the number of emails sent (x) to the amount of data used for a cell phone plan (y)?

(1) integers

(2) whole numbers

(3) rational numbers

(4) irrational numbers

Question 6.

Which function has the *smallest* y-intercept?

$g(x) = 2x - 6$

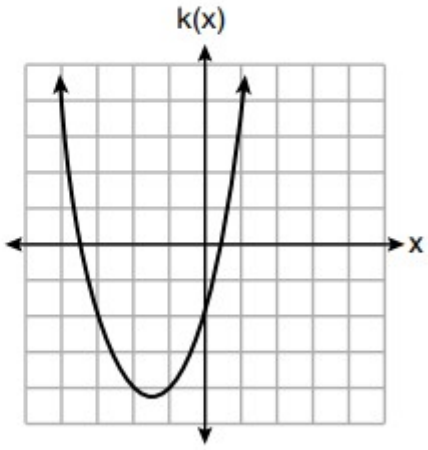
(1)

$f(x) = \sqrt{x} - 2$

(3)

x	h(x)
–2	$\frac{1}{4}$
–1	$\frac{1}{2}$
0	1
1	2
2	4

(2)



(4)

Question 7.

Given: the sequence 4, 7, 10, 13,...

When using the arithmetic sequence formula $a_n = a_1 + (n - 1)d$ to determine the 10th term, which variable would be replaced with the number 3?

(1) a_1

(2) n

(3) a_n

(4) d

Question 8.

Given the pattern below, which recursive formula represents the number of triangles in this sequence?

(1) $y = 2x + 3$

(2) $y = 3x + 2$

(3) $a_1 = 2,\ a_n = a_{n-1} + 3$

(4) $a_1 = 3,\ a_n = a_{n-1} + 2$

Question 9.

Which ordered pair does *not* fall on the line formed by the other three?

(1) (16,18)
(2) (12,12)
(3) (9,10)
(4) (3,6)

Question 10.

Solve algebraically for y:

$$4(y - 3) \leq 4(2y + 1)$$

Bonus Question

Question 11a

Which system has the same solution as the system below?

$$x + 3y = 10$$
$$-2x - 2y = 4$$

(1) $-x + y = 6$
$2x + 6y = 20$

(2) $-x + y = 14$
$2x + 6y = 20$

(3) $x + y = 6$
$2x + 6y = 20$

(4) $x + y = 14$
$2x + 6y = 20$

Question 11b.

Factor $x^4 - 16$ completely.