Algebra 1 Quick Quiz
September 19, 2024
Name.....Period.....…

1. Three expressions are shown below.

I. $(x^3)^3$
II. $x^4 \cdot x^5$
III. $x^{10} \cdot x^{-1}$

Which expressions are equivalent for all positive values of x?

(1) I and II, only
(2) I and III, only
(3) II and III, only
(4) I, II, and III

2. Jim uses the equation $A = P(1 + 0.05)^t$ to find the amount of money in an account, A, of an investment, P, after t years. For this equation, which phrase describes the yearly rate of change?

(1) decreasing by 5%
(2) decreasing by 0.05%
(3) increasing by 5%
(4) increasing by 0.05%

3. What are the zeros of $m(x) = x(x^2 - 16)$?

(1) -4 and 4, only
(2) -8 and 8, only
(3) -4, 0, and 4
(4) -8, 0, and 8

4. For which function is the value of the y-intercept the *smallest*?

(1)

x	f(x)
−4	5
−2	4
0	3
2	2
4	1

(2) $g(x) = |x| + 4$

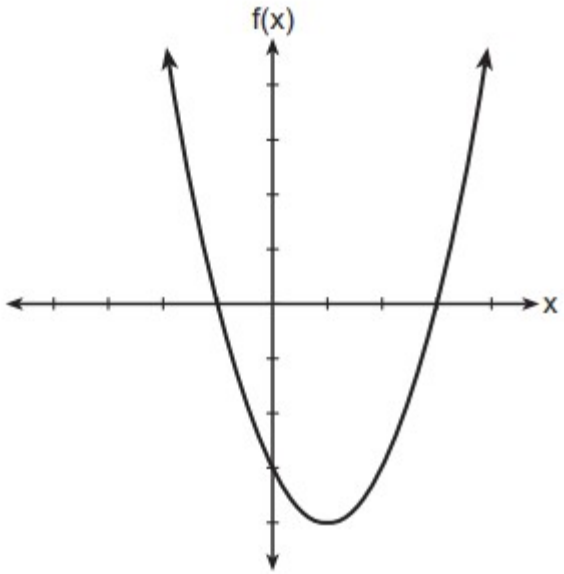
(3)

x	h(x)
−1	3
0	2
1	3
2	6
3	11

(4) $k(x) = 5^x$

5.

The function f is graphed on the set of axes below.



What is a possible factorization of this function?

(1) $f(x) = (x - 1)(x + 3)$

(2) $f(x) = (x + 1)(x - 3)$

(3) $f(x) = (x + 1)(x - 4)$

(4) $f(x) = (x - 1)(x + 4)$

6.

The range of $f(x) = x^2 + 2x - 5$ is the set of all real numbers

(1) less than or equal to -6

(2) greater than or equal to -6

(3) less than or equal to -1

(4) greater than or equal to -1

7.

Tables of values for four functions are shown below.

x	f(x)
0	6
1	7
2	10
3	15
4	22

x	h(x)
0	1
1	2
2	4
3	8
4	16

x	g(x)
0	0
1	−2
2	−2
3	0
4	4

x	j(x)
0	2
1	5
2	8
3	11
4	14

Which table best represents an exponential function?

(1) $f(x)$

(2) $g(x)$

(3) $h(x)$

(4) $j(x)$

8.

If $f(x) = x^2 + 3x$, then which statement is true?

(1) $f(1) = f(-1)$

(2) $f(2) = f(-2)$

(3) $f(1) = f(2)$

(4) $f(-1) = f(-2)$

9.

Jack started a new fitness program. The first day he did 10 push-ups. The program required him to increase the number of push-ups each day by doing 9 less than twice the number from the previous day. Which recursive formula correctly models Jack's new program, where n is the number of days and a_n is the number of push-ups on the nth day?

(1) $a_1 = 10$
$a_n = 2a_{n-1} - 9$

(2) $a_1 = 10$
$a_n = 9 - 2a_{n-1}$

(3) $a_1 = 10$
$a_n = 2(n - 1) - 9$

(4) $a_1 = 10$
$a_n = 9 - 2(n - 1)$

10.

Which equation is equivalent to $x^2 - 6x + 4 = 0$?

(1) $(x - 3)^2 = -4$

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

(3) $(x - 3)^2 = 6$

(4) $(x - 3)^2 = 9$

Bonus

11.

Classify the expression $\frac{2}{\sqrt{144}} + \frac{\sqrt{169}}{3}$ as rational or irrational. Explain your reasoning.