

Algebra 2 quick quiz 03282023

Question 1.

Which of the following is equivalent to $(i + 3) + i(2i - 4)$?

- A. $-5i + 1$
- B. $-i + 3$
- C. $i - 3$
- D. $-3i + 1$

Question 2.

Let $f(x) = 2x^2 - x + 1$ and let $g(x) = x - 4$. Which statements are true?

Select **all** that apply.

- A. One root of $f(x)$ is -4 .
- B. One root of $f(x)$ is 29 .
- C. If $f(x)$ is divided by $g(x)$, the remainder is 29 .
- D. $g(x)$ is a factor of $f(x)$.
- E. $g(x)$ is not a factor of $f(x)$.

Question 3.

Solve $\sqrt{a} = a - 6$. What is the extraneous solution?

Enter your answer in the box.

Question 4.

Consider the equation $p^2 - 5p - 6 - x(p - 6)^2 = 0$, where p is a real constant.

Part A

If $p = 6$, then the equation has

- A. no real solutions.
- B. exactly one real solution.
- C. exactly two real solutions.
- D. infinitely many real solutions.

Part B

If $p \neq 6$, then $x =$

- A. $\frac{p-2}{p-6}$
- B. $\frac{p-1}{p-6}$
- C. $\frac{p+1}{p-6}$
- D. $\frac{p+2}{p-6}$

Question 5.

A solution for each equation is given.

Drag and drop the letter of each equation into the appropriate box for its solution.



A $-4x + 20 - a = 4(-x + 5) + a$

B $4x - 20 + 2a = 4(x - 5) + a + 1$

$a = 1$

$a = 0$

$a = -1$

Question 6.

Four sequences are shown. The general term for each sequence is defined for a_n , where n is a positive integer. For each sequence, drag the definition that generates the sequence into the appropriate box.

$$a_n = -3 - 2.5(n - 1)$$

$$a_n = -3(-2)^{n-1}$$

$$a_n = 81\left(\frac{1}{3}\right)^{n-1}$$

$$a_n = 81 - 3(n - 1)$$

-3, 6, -12, 24, ...

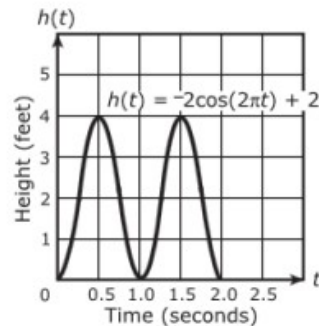
81, 78, 75, 72, ...

-3, -5.5, -8, -10.5, ...

81, 27, 9, 3, ...

Question 7.

Lara is jumping rope for exercise. The function $h(t) = -2\cos(2\pi t) + 2$ gives the height of the midpoint of the rope, in feet, after t seconds. The graph of the function is given for the time interval $0 \leq t \leq 2$.



Select **all** the intervals over which there is a negative average rate of change in the height of the midpoint of the rope.

Select **all** that apply.

- A. $0 < t < 0.5$
- B. $0 < t < 1$
- C. $0.5 < t < 1$
- D. $1 < t < 2$
- E. $1.5 < t < 2$

Question 8.

A bank pays depositors a 2% interest rate compounded semiannually. Let P represent an initial deposit and let t represent the number of years that the deposit is in the bank. The expression $P\left(1 + \frac{0.02}{2}\right)^{2t}$ can be used to determine the account balance after t years. Which expression accurately reflects the annual interest rate?

- A. $P(1.01)^t$
- B. $P(1.21)^t$
- C. $P(1.0201)^t$
- D. $P(1.0404)^t$

Question 9.

Solve the system of equations below for x , y , and z .

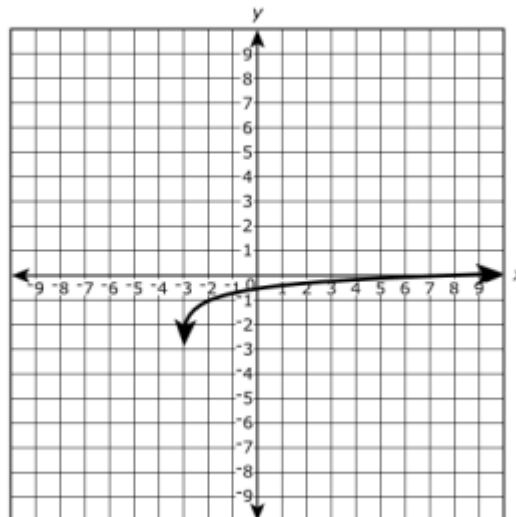
$$\begin{cases} 4x - 2y + 3z = 9 \\ x - 2y = -3 \\ 2x + 3y = 1 \end{cases}$$

Enter your answers in the boxes.

$x =$ $y =$ $z =$

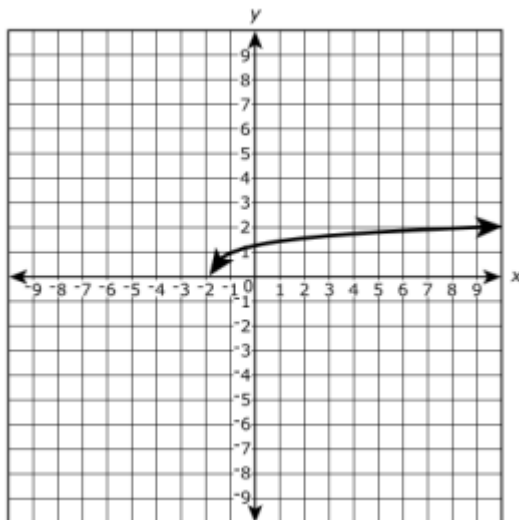
Question 10.

The given graph represents the function $f(x)$. Let g be defined as $g(x) = f(x - 1) + 2$.

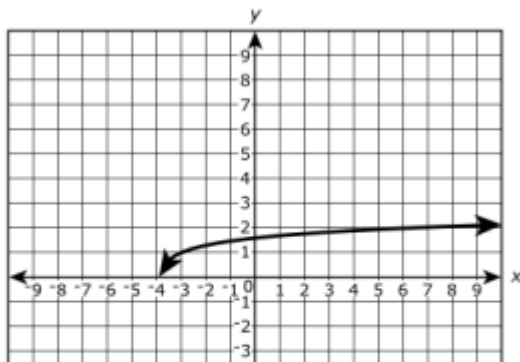


What is the graph of $g(x)$?

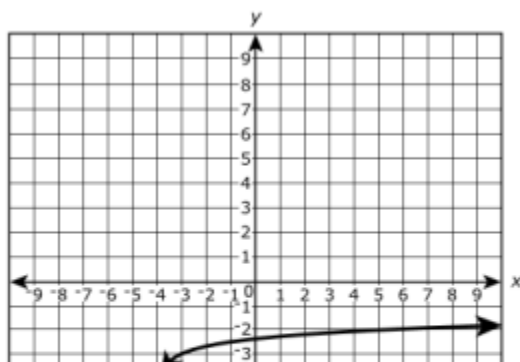
A.



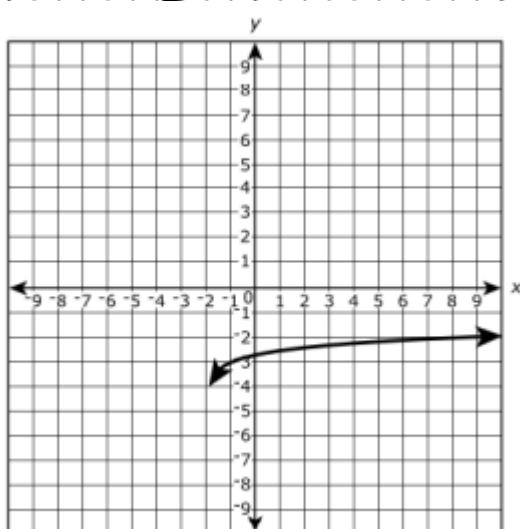
B.



C.



D.



Bonus Question

Question 11a.

For $m > 0$, the expression $\frac{2(\sqrt{m})^3}{\sqrt[4]{m}}$ can be rewritten in the form $2m^a$, where a is a fraction.

What is the value of a ?

Enter your answer in the boxes.

Question 11b.

An expression is given.

$$\frac{(3x)}{(3x)^{\frac{3}{2}}}$$

If $x > 0$, which of the expressions listed is equivalent to the expression given?

Select **all** that apply.

- A. $\frac{1}{3x}$
- B. $\frac{1}{\sqrt{3x}}$
- C. $\frac{1}{3\sqrt{x}}$
- D. $(3x)^{\frac{1}{2}}$
- E. $(3x)^{-\frac{1}{2}}$