

Algebra 2 quick quiz 01302023

Question 1.

The Hot and Tasty Coffee chain conducts a survey of its customers at its location at the Staten Island ferry terminal. After the survey is completed, the statistical consultant states that 70% of customers who took the survey said the most important factor in choosing where to get their coffee is how fast they are served. Based on this result, Hot and Tasty Coffee can infer that

- (1) most of its customers in New York State care most about being served quickly
- (2) coffee drinkers care less about taste and more about being served quickly
- (3) most of its customers at the Staten Island ferry terminal care most about being served quickly
- (4) most of its customers at transportation terminals and stations care most about being served quickly

Question 2

Given that i is the imaginary unit, the expression $(x - 2i)^2$ is equivalent to

- | | |
|---------------|---------------------|
| (1) $x^2 + 4$ | (3) $x^2 - 2xi - 4$ |
| (2) $x^2 - 4$ | (4) $x^2 - 4xi - 4$ |

Question 3.

The equation below can be used to model the height of a tide in feet, $H(t)$, on a beach at t hours.

$$H(t) = 4.8\sin\left(\frac{\pi}{6}(t + 3)\right) + 5.1$$

Using this function, the amplitude of the tide is

- | | |
|---------------------|---------|
| (1) $\frac{\pi}{6}$ | (3) 3 |
| (2) 4.8 | (4) 5.1 |

Question 4.

Consider the function $f(x) = 2x^3 + x^2 - 18x - 9$. Which statement is true?

- (1) $2x - 1$ is a factor of $f(x)$. (3) $f(3) \neq f\left(-\frac{1}{2}\right)$
(2) $x - 3$ is a factor of $f(x)$. (4) $f\left(\frac{1}{2}\right) = 0$

Question 5.

The expression $(a\sqrt[3]{2b^2})(\sqrt[3]{4a^2b})$ is equivalent to

- (1) $2ab\sqrt[3]{a^2}$ (3) $2ab\sqrt[3]{2a^2}$
(2) $2ab$ (4) $2a^2b\sqrt[3]{2b}$

Question 6.

Given $f(x) = 3^{x-1} + 2$, as $x \rightarrow -\infty$

- (1) $f(x) \rightarrow -1$ (3) $f(x) \rightarrow 2$
(2) $f(x) \rightarrow 0$ (4) $f(x) \rightarrow -\infty$

Question 7.

For all values of x for which the expression is defined, $\frac{x^2 + 3x}{x^2 + 5x + 6}$ is equivalent to

- (1) $1 - \frac{x}{x+2}$ (3) $\frac{3x}{5x+6}$
(2) $\frac{x}{x+2}$ (4) $1 + \frac{1}{2x+6}$

Question 8.

A recursive formula for the sequence 64, 48, 36, ... is

- (1) $a_n = 64(0.75)^{n-1}$ (3) $a_n = 64 + (n-1)(-16)$
(2) $a_1 = 64$ (4) $a_1 = 64$
 $a_n = a_{n-1} - 16$ $a_n = 0.75 a_{n-1}$

Question 9.

Which expression is equivalent to $\frac{x^3 - 2}{x - 2}$?

(1) x^2

(3) $x^2 - 2$

(2) $x^2 + 2x + 4 + \frac{6}{x - 2}$

(4) $x^2 - 2x + 4 - \frac{10}{x - 2}$

Question 10.

What is the solution set of the equation $\frac{4}{k^2 - 8k + 12} = \frac{k}{k - 2} + \frac{1}{k - 6}$?

(1) $\{-1, 6\}$

(3) $\{-1\}$

(2) $\{1, -6\}$

(4) $\{1\}$

Bonus Question

Question 11

A parabola that has a vertex at $(2, 1)$ and a focus of $(2, -3)$ has an equation of

(1) $y = \frac{1}{16}(x - 2)^2 + 1$

(3) $y = -\frac{1}{16}(x - 2)^2 + 1$

(2) $y = -\frac{1}{16}(x + 2)^2 - 1$

(4) $y = -\frac{1}{16}(x - 2)^2 - 3$