

# Algebra 2 Quick Quiz 11282022

## 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.

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 4.

Which equation has roots of  $3 + i$  and  $3 - i$  ?

(1)  $x^2 - 6x + 10 = 0$

(3)  $x^2 - 10x + 6 = 0$

(2)  $x^2 + 6x - 10 = 0$

(4)  $x^2 + 10x - 6 = 0$

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)  $1 + \frac{1}{2x+6}$



Bonus Question

Question 11

Given that  $\sin^2 \theta + \cos^2 \theta = 1$  and  $\sin \theta = -\frac{\sqrt{2}}{5}$ , what is a possible value of  $\cos \theta$ ?

(1)  $\frac{5 + \sqrt{2}}{5}$

(3)  $\frac{3\sqrt{3}}{5}$

(2)  $\frac{\sqrt{23}}{5}$

(4)  $\frac{\sqrt{35}}{5}$