

# Algebra 2 Quick Quiz 10192022

Question 1.

Which equation has  $1 - i$  as a solution?

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

(3)  $x^2 - 2x - 2 = 0$

(2)  $x^2 + 2x + 2 = 0$

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

Question 2

Which statement(s) about statistical studies is true?

- I. A survey of all English classes in a high school would be a good sample to determine the number of hours students throughout the school spend studying.
- II. A survey of all ninth graders in a high school would be a good sample to determine the number of student parking spaces needed at that high school.
- III. A survey of all students in one lunch period in a high school would be a good sample to determine the number of hours adults spend on social media websites.
- IV. A survey of all Calculus students in a high school would be a good sample to determine the number of students throughout the school who don't like math.

(1) I, only

(3) I and III

(2) II, only

(4) III and IV

Question 3.

To the *nearest tenth*, the value of  $x$  that satisfies  $2^x = -2x + 11$  is

- (1) 2.5
- (2) 2.6
- (3) 5.8
- (4) 5.9

Question 4.

Sally's high school is planning their spring musical. The revenue,  $R$ , generated can be determined by the function  $R(t) = -33t^2 + 360t$ , where  $t$  represents the price of a ticket. The production cost,  $C$ , of the musical is represented by the function  $C(t) = 700 + 5t$ . What is the highest ticket price, to the *nearest dollar*, they can charge in order to *not* lose money on the event?

- (1)  $t = 3$
- (2)  $t = 5$
- (3)  $t = 8$
- (4)  $t = 11$

Question 5.

If  $g(c) = 1 - c^2$  and  $m(c) = c + 1$ , then which statement is *not* true?

- (1)  $g(c) \cdot m(c) = 1 + c - c^2 - c^3$
- (2)  $g(c) + m(c) = 2 + c - c^2$
- (3)  $m(c) - g(c) = c + c^2$
- (4)  $\frac{m(c)}{g(c)} = \frac{-1}{1 - c}$

Question 6.

The set of data in the table below shows the results of a survey on the number of messages that people of different ages text on their cell phones each month.

Age Group	Text Messages per Month		
	0–10	11–50	Over 50
15–18	4	37	68
19–22	6	25	87
23–60	25	47	157

If a person from this survey is selected at random, what is the probability that the person texts over 50 messages per month given that the person is between the ages of 23 and 60?

- (1)  $\frac{157}{229}$                       (3)  $\frac{157}{384}$   
 (2)  $\frac{157}{312}$                       (4)  $\frac{157}{456}$

Question 7.

A recursive formula for the sequence 18, 9, 4.5, ... is

- (1)  $g_1 = 18$                       (3)  $g_1 = 18$   
 $g_n = \frac{1}{2}g_{n-1}$                        $g_n = 2g_{n-1}$   
 (2)  $g_n = 18\left(\frac{1}{2}\right)^{n-1}$                       (4)  $g_n = 18(2)^{n-1}$

Question 8.

The expression  $\frac{x^3 + 2x^2 + x + 6}{x + 2}$  is equivalent to

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

Question 9.

The completely factored form of  $2d^4 + 6d^3 - 18d^2 - 54d$  is

- (1)  $2d(d^2 - 9)(d + 3)$       (3)  $2d(d + 3)^2(d - 3)$   
(2)  $2d(d^2 + 9)(d + 3)$       (4)  $2d(d - 3)^2(d + 3)$

Question 10.

The focal length,  $F$ , of a camera's lens is related to the distance of the object from the lens,  $J$ , and the distance to the image area in the camera,  $W$ , by the formula below.

$$\frac{1}{J} + \frac{1}{W} = \frac{1}{F}$$

When this equation is solved for  $J$  in terms of  $F$  and  $W$ ,  $J$  equals

- (1)  $F - W$       (3)  $\frac{FW}{W - F}$   
(2)  $\frac{FW}{F - W}$       (4)  $\frac{1}{F} - \frac{1}{W}$

Bonus Question

Question 11

Determine if  $x - 5$  is a factor of  $2x^3 - 4x^2 - 7x - 10$ . Explain your answer.