Algebra 2 Quick Quiz 11032022

Question 1.

Which expression represents $(-3-2i)-(-5+i)$?

A $-8-3i$

B $-8-i$

C $2-i$

D $2-3i$

Question 2

What is the sum of the complex numbers $(12-5i)$ and $(-3+4i)$?

A $9-i$

B $15-9i$

C $-16+63i$

D $9-9i$

Question 3.

Two consecutive positive integers have the property that one integer times twice the other equals 612. What is the sum of these two integers?

A 33

B 35

C 37

D 39

Question 4.

Which of the following sentences is true about the graphs of $y = 3(x-5)^2 + 1$ and $y = 3(x+5)^2 + 1$?

A Their vertices are maximums.

B The graphs have the same shape with different vertices.

C The graphs have different shapes with different vertices.

D One graph has a vertex that is a maximum, while the other graph has a vertex that is a minimum.

Question 5.

What are the x-intercepts of the graph of $y = 12x^2 - 5x - 2$?

A 1 and $-\frac{1}{6}$

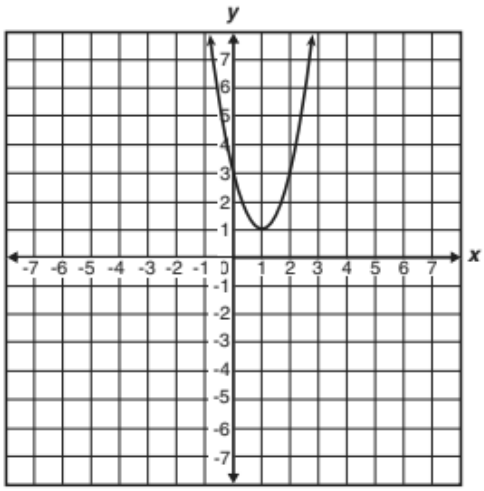
B -1 and $\frac{1}{6}$

C $\frac{2}{3}$ and $-\frac{1}{4}$

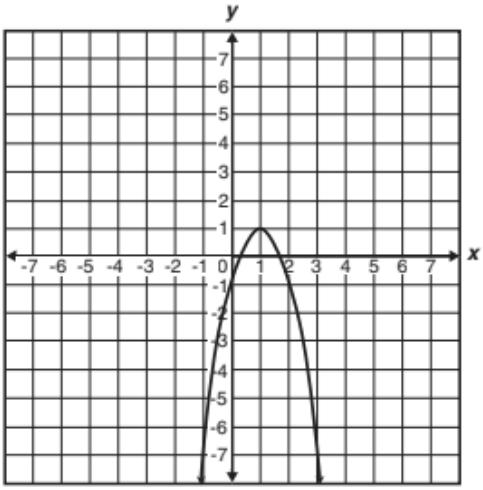
D $-\frac{2}{3}$ and $\frac{1}{4}$

Question 6. Do NOT use your graphing calculator or Desmos for this question.

Which is the graph of $y = -2(x-1)^2 + 1$?



A



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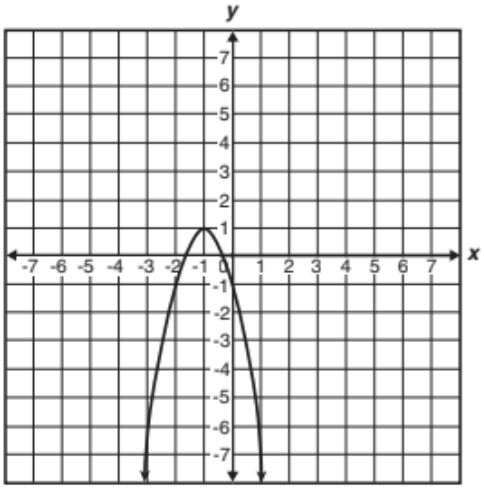

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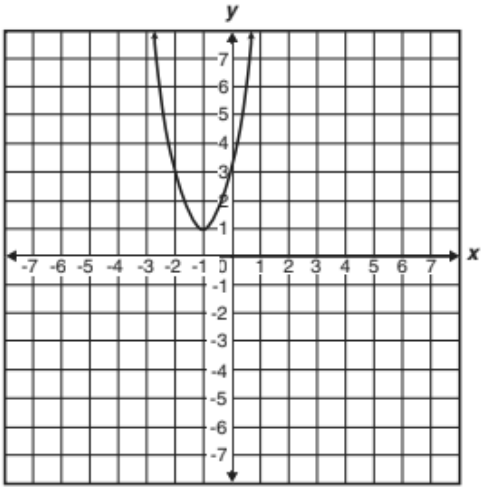

D

Question 7.Do NOT use your graphing calculator or Desmos for this question.

Which ordered pair is the vertex of $f(x) = x^2 + 6x + 5$?

A $(-3, -4)$

B $(-2, -3)$

C $(-1, 0)$

D $(0, -5)$

Question 8.

Jeremy, Michael, Shanan, and Brenda each worked the same math problem at the chalkboard. Each student's work is shown below. Their teacher said that while two of them had the correct answer, only one of them had arrived at the correct conclusion using correct steps.

Jeremy's work

$$x^3x^{-7} = \frac{x^3}{x^{-7}}$$
$$= x^{10}, x \neq 0$$

Shanan's work

$$x^3x^{-7} = \frac{x^3}{x^7}$$
$$= \frac{1}{x^4}, x \neq 0$$

Michael's work

$$x^3x^{-7} = \frac{x^3}{x^{-7}}$$
$$= x^{-4}, x \neq 0$$

Brenda's work

$$x^3x^{-7} = \frac{x^3}{x^7}$$
$$= x^4, x \neq 0$$

Which is a completely correct solution?

A Jeremy's work

B Michael's work

C Shanan's work

D Brenda's work

Question 9.

A certain radioactive element decays over time according to the equation $y = A\left(\frac{1}{2}\right)^{\frac{t}{300}}$, where A = the number of grams present initially and t = time in years. If 1000 grams were present initially, how many grams will remain after 900 years?

A 500 grams

B 250 grams

C 125 grams

D 62.5 grams

Question 10.

Bacteria in a culture are growing exponentially with time, as shown in the table below.

Bacteria Growth

Day	Bacteria
0	100
1	200
2	400

Which of the following equations expresses the number of bacteria, y, present at any time, t?

A $y = 100 + 2^t$

B $y = (100) \cdot (2)^t$

C $y = 2^t$

D $y = (200) \cdot (2)^t$

Bonus Question

Question 11

Given that $x > 0$, which expression is equivalent to $5\sqrt{xy} + 25\sqrt{x}$?

A. $5(xy)^{-1} + 25x^{-1}$

B. $25x^{\frac{1}{2}}(\sqrt{y} + 5)$

C. $\sqrt{x}\left(25y^{\frac{1}{2}} + 5\right)$

D. $5x^{\frac{1}{2}}\left(y^{\frac{1}{2}} + 5\right)$