

Algebra 2 Quick Quiz 10212022

Question 1.

A rabbit population doubles every 4 weeks. There are currently five rabbits in a restricted area. If t represents the time, in weeks, and $P(t)$ is the population of rabbits with respect to time, about how many rabbits will there be in 98 days?

- (1) 56 (3) 3688
(2) 152 (4) 81,920

Question 2

When factored completely, $m^5 + m^3 - 6m$ is equivalent to

- (1) $(m + 3)(m - 2)$ (3) $m(m^4 + m^2 - 6)$
(2) $(m^3 + 3m)(m^2 - 2)$ (4) $m(m^2 + 3)(m^2 - 2)$

Question 3.

If $p(x) = ab^x$ and $r(x) = cd^x$, then $p(x) \cdot r(x)$ equals

- (1) $ac(b + d)^x$ (3) $ac(bd)^x$
(2) $ac(b + d)^{2x}$ (4) $ac(bd)^{x^2}$

Question 4.

The solution to the equation $18x^2 - 24x + 87 = 0$ is

- (1) $-\frac{2}{3} \pm 6i\sqrt{158}$ (3) $\frac{2}{3} \pm 6i\sqrt{158}$
(2) $-\frac{2}{3} \pm \frac{1}{6}i\sqrt{158}$ (4) $\frac{2}{3} \pm \frac{1}{6}i\sqrt{158}$

Question 5.

When $g(x)$ is divided by $x + 4$, the remainder is 0. Given $g(x) = x^4 + 3x^3 - 6x^2 - 6x + 8$, which conclusion about $g(x)$ is true?

- (1) $g(4) = 0$
- (2) $g(-4) = 0$
- (3) $x - 4$ is a factor of $g(x)$.
- (4) No conclusion can be made regarding $g(x)$.

Question 6.

Express $(1 - i)^3$ in $a + bi$ form.

Question 7.

Given $f(x) = 3x^2 + 7x - 20$ and $g(x) = x - 2$, state the quotient and remainder of $\frac{f(x)}{g(x)}$, in the form $q(x) + \frac{r(x)}{g(x)}$.

Question 8.

Algebraically determine the values of h and k to correctly complete the identity stated below.

$$2x^3 - 10x^2 + 11x - 7 = (x - 4)(2x^2 + hx + 3) + k$$

Question 9.

$$\square \quad 2x + 7 \overline{) 2x^4 + 21x^3 + 35x^2 - 37x + 46}$$

A $x^3 + 7x^2 - 7x + 6 - \frac{4}{2x+7}$

B $2x^3 + 14x^2 - 14x + 12 - \frac{4}{2x+7}$

C $x^3 - 7x^2 + 7x - 6 + \frac{4}{2x+7}$

D $x^3 + 7x^2 - 7x + 6 + \frac{4}{2x+7}$

Question 10.

Which product of factors is equivalent to $(x+1)^2 - y^2$?

A $(x+1+y)^2$

B $(x+1-y)^2$

C $(x-1+y)(x-1-y)$

D $(x+1+y)(x+1-y)$

Bonus Question

Question 11

Find algebraically the zeros for $p(x) = x^3 + x^2 - 4x - 4$.