ALGEBRA 5: QUIZ SOLUTIONS

Question 1

If x^2-5x+6 is divided by $x-3$, what is the quotient?

A. $x-2$ B. $x+2$ C. $x+3$ D. $x-3$

Solution

$x^2-5x+6=(x-3)(x-2)$

i.e. $(x^2-5x+6)\div(x-3)=(x-2)$

$\therefore$ Quotient is (x - 2).

So, the correct answer is A.

Question 2

If x^2+5x+7 is divided by $(x+3)$, it may be re-written as $(x+3)(ax+b)+c$. What is the quotient?

A. $x+3$ B. $ax+b$ C. x^2+5x+7 D. c

Solution

$x^2+5x+7=(x+3)(ax+b)+c$

$\therefore$ Quotient is (ax + b).

So, the correct answer is B.

Question 3

If x^3-6x^2-x+26 is divided by $x+2$, what is the remainder?

A. 26 B. 4 C. 0 D. -4

Solution

Let $f(x)=x^3-6x^2-x+26$

$\therefore f(-2)=(-2)^3-6(-2)^2-(-2)+26=-4$

$\therefore$ Remainder = -4.

So, the correct answer is D.

Question 4

If $f(x)=x^3-6x^2-x+26$ is divided by $2x+1$, what is the remainder?

A. $-\frac{1}{2}$ B. 0 C. $\frac{1}{2}$ D. 2

Solution

$f(x)=x^3-6x^2-x+26$

$\therefore f(-\frac{1}{2})=(-\frac{1}{2})^3-6(-\frac{1}{2})^2-(-\frac{1}{2})+26=0$

$\therefore$ Remainder = 0.

So, the correct answer is B.

Question 5

Factorise completely, $7x^3 + 19x^2 - 72x - 144$.

A. $(x+3)(x-4)(7x+12)$ B. $(x-3)(x-4)(7x-12)$

C. $(x-3)(x+4)(7x+12)$ D. $(x+3)(x-4)(7x-12)$

Solution

Let $f(x) = 7x^3 + 19x^2 - 72x - 144$

$\therefore f(3) = 7(3)^3 + 19(3)^2 - 72(3) - 144 = 0$

$\therefore$ (x - 3) is a factor of $f(x)$

$$\therefore 7x^3 + 19x^2 - 72x - 144 = (x-3)(7x^2 + 40x + 48)$$
$$= (x-3)(x+4)(7x+12)$$

So, the correct answer is C.