Algebraic Functions Test 2A

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Question: 1

In factorised form: $x^3-64=$

a) $(x+4)(x^2+4x+16)$

b) $(x+4)(x^2+4x-16)$

c) $(x-4)(x^2+4x+16)$

d) $(x+4)(x^2-4x-16)$

e) $(x-4)(x^2-4x+16)$

Question: 2

In factorised form: $x^2-6x+9-2xy+6y=$

a) $\left(x+\sqrt{-2x(3y-xy)}-3\right)\left(x-\sqrt{-2x(3y-xy)}-3\right)$

b) $x^2-2x(y+3)-3(2y-3)$

c) $2y(x-3)^2(x+3)$

d) $(x-3)(x-2y-3)$

e) $(x+3)(x-2y+3)$

Question: 3

The sum of the coefficients in the expansion of $(2x+3y)^5$ is equal to:

a) 3125 b) 625 c) 32 d) 25 e) 5

Question: 4

Given $f(x)=\dfrac{x^3+8}{x-5}\div\dfrac{x^2-4}{5-x}$ then $f(x)$ can also be written as:

a) $\dfrac{x^2-2x+4}{2-x}$ $x\in R$

b) $\dfrac{-(x^2-2x+4)}{x-2}$ $x\in R/x=2$

c) $\dfrac{x^2-2x+4}{2-x}$ $x\in R/x=\{2,5\}$

d) $\dfrac{x^2-2x+4}{2-x}$ $x\in R/x=\{-2,2,5\}$

e) $\dfrac{-(x^2-2x+4)}{x-2}$ $x\in R/x=5$

Question: 5

$\dfrac{(n+4)!}{n!}$ is equal to:

a) $n(n+1)(n+2)(n+3)$

b) $(n+4)(n+3)(n+2)(n+1)$

c) $n(n+4)(n+3)(n+2)(n+1)$

d) $24n$

e) None of these

Question: 6

Which one of the following is true for all values of x and y

a) $\sqrt{xy} = \sqrt{x}\sqrt{y}$

b) $\sqrt{x^2y^2} = xy$

c) $y\left(\sqrt{x}\right)^2 = |x|y$

d) $x\sqrt{y^2} = x|y|$

e) $\dfrac{xy}{\sqrt{xy}} = \sqrt{xy}$

Question: 7

Given $x = 4 - \sqrt{3}$, which one of the following expressions would result in a rational number?

a) $x^2 - 4x + 3$

b) $x^2 + 4x + 3$

c) $x^2 - 4x - 3$

d) x^2

e) $x^2 - 8x + 27$

Question: 8

Given that $a > b > 0$ which one of the following statements is **not** always true:

a) $\dfrac{a^2 - 3ab + 2b^2}{a^2 + ab - 6b^2} = \dfrac{a-b}{a+3b}$

b) $\dfrac{1}{a} + \dfrac{1}{b} = \dfrac{a+b}{ab}$

c) $\sqrt{a^2b^2} = ab$

d) $\dfrac{a^2 - b^2}{a-b} = a + b$

e) $a\sqrt{b} > b\sqrt{a}$

Question: 9

The set of values: $(-4,8] \cap [-2,12)$ is equivalent to:

a) $[-2,8]$

b) $(-4,-2] \cup [8,12)$

c) $(-4,12)$

d) $(-4,-2]$

e) $(-2,8)$

Question: 10

The sum of the coefficients of $(x+ay)^6$ is equal to 4096. The value of a could be:

a) -5 b) 0 c) 1 d) 2 e) 4