VIDYA BHARATI SCHOOL

OLYMPIAD WORKSHEET: May-2017

GRADE: X

SUBJECT: MATHEMATICS

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1. If If α and β are zeroes of x2 – 4x + 1, then 1/α + 1/β – αβ is
   (a) 3 (b) 5 (c) –5 (d) –3

2. The quadratic polynomial having zeroes as 1 and –2 is
   (a) $x^2 – x + 2$ (b) $x^2 – x – 2$ (c) $x^2 + x – 2$ (d) $x^2 + x + 2$

3. If α, β are zeroes of $x^2 – 6x + k$, what is the value of k if 3α+2β=20 ?
   (a)–16 (b) 8 (c) 2 (d) –8

4. If one zero of $2x^2 – 3x + k$ is reciprocal to the other, then the value of k is
   (a) 2 (b) −23 (c) −32 (d) –3

5. The quadratic polynomial whose sum of zeroes is 3 and product of zeroes is
   (a) $x^2 + 3x – 2$ (b) $x^2 – 2x + 3$ (c) $x^2 – 3x + 2$ (d) $x^2 – 3x – 2$

6. If (x + 1) is a factor of x2 – 3ax + 3a – 7, then the value of a is
   (a)1 (b) –1 (c) 0 (d) –2

7. The value of p for which the polynomial $x^3 + 4x^2 – px + 8$ is exactly divisible by (x – 2) is
   (a) 0 (b) 3 (c) 5 (d) 16

8. If 1 is a zero of the polynomial $p(x) = ax^2 – 3(a – 1)x – 1$, then the value of a is
   (a) 1 (b) –1 (c) 2 (d) –2

9. The degree of the polynomial $(x + 1)(x^2 – x – x^4 + 1)$ is
   (a) 2 (b) 3 (c) 4 (d) 5

10. If a and b are zeroes of the polynomial $2x^2+7x-3$, then the value of $a^2 + b^2$ is
    (a) 49/4 (b) 37/4 (c) 61/4 d. 61/2

11. If 2 is a zero of the polynomials $3x^2+ax-14$ and $2x^3+bx^2+x-2$, then the value of 2 - 2b is

a) -1 b) 5 c) 9 d) -9

12. If f(x) = x-9 , the value of f(x)- f(-x)

a) 2x b) 3x c) 15 d) 3

13. How many zeroes does a cubic polynomial have ?

a) 1 b) 3 c) 4 d) 5

14. How many zeroes does a zero polynomial have ?

(a) Infinitely many zeroes b) 5 c) 0 d) 1

15. If X21 – 20 is divided by x+1 then remainder is

(a) - 21 b) 25 c) 45 d) 32

16. if x+2 is a factor of x2+ax+2b and a+b = 4 then

(a) a=1,b=3 b) a=3,b=1 c) a=-1,b=5 d) a=5,b=-1

17. the product of the zeros of x3+4x2+x-6

(a) -4 b) 4 c) 6 d) -6

18.If a+b+c=9 and ab+bc+ca= 40 , then the value of a2+b2+c2 is

(a) 1 b) 2 c)15 d) 20

19. √2 is polynomial of degree

(a) 2 (b) 1 (c) 0 (d) 1/2

20. Degree of a zero polynomial

(a) 1 b) 2 c) 0 d) not define
