Algebraic Expressions and Identities: Worksheet -10

1. If $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{6}$ then $\sqrt{x} + \frac{1}{\sqrt{x}} =$ _____ [ ]

   a) 10 b) $\sqrt{10}$ c) 7 d) none of these

2. If N is a natural number and $f_1, f_2, f_3, \ldots\ldots f_n$ are the all possible factors of N also observed that $f_1+f_2+f_3+\ldots\ldots f_n = 2N$ then example of such N is _____ [ ]

   a) 10 b) 28 c) 12 d) 14

3. If $a^2 - 2a + 1 = 0$ then the value of $a^2 + \frac{1}{a^2} =$ [ ]

   a) 2 b) 5 c) 1 d) 0

4. The value of $(1 - \frac{1}{2})(1 - \frac{1}{3})(1 - \frac{1}{4}) \ldots\ldots\ldots (1 - \frac{1}{2008})$ is [ ]

   a) $\frac{1}{2008}$ b) $\frac{2007}{2008}$ c) $\frac{1}{2007}$ d) 1004

5. $x^4 - x^2 + 1 =$ [ ]

   a) $(x^2 - x + 1)(x^2 + x - 1)$ b) $(x^2 + x - 1)(x^2 + x + 1)$

   c) $(x^2 - x + 1)(x^2 + x + 1)$ d) none of these

6. $1 + 2ab - (a^2 + b^2)$ [ ]

   a) $(1 + a - b)(1 + a + b)$ b) $(1 + a + b)(1 - a - b)$

   c) $(1 - a + b)(1 + a - b)$ d) $(1 - a - b)(1 - a + b)$

7. $\left(\frac{x+y}{2}\right)^2-\left(\frac{x-y}{2}\right)^2=$ [ ]

a) x + y b) x – y c) xy d) 2xy

8. The reduced form of $\frac{a^2-5}{a+\sqrt{5}}$ is [ ]

a) a + $\sqrt{5}$ b) a- $\sqrt{5}$ c) 1 d) a+5

9. If $x+\frac{1}{x}=2$ then $x^4+x^3+\frac{1}{x^4}+\frac{1}{x^3}$ [ ]

a) 2 b) 3 c) 4 d) 27

10. 514 x 514 – 514 x 28 + 196 = 10000k then k = [ ]

a) 25 b) 36 c) 14 d) 16