1. The ratio of the coefficient of the middle term in the expansion of $(1+x)^{20}$ and the sum of the coefficients of two middle terms in expansion of $(1+x)^{19}$ is ___.

2. If numerically greatest term in the expansion of $(3-5x)^{11}$, where $x=\frac{1}{5}$, is 729λ, then the value of $\frac{\lambda}{150}$ is

3. If the middle term in the binomial expansion of $\left(\frac{1}{x}+x\sin x\right)^{10}$ is $\frac{63}{8}$, then the value of $6\sin^2 x+\sin x-2$ is

4. The term independent of x in the expansion of $\left(\frac{x+1}{x^{2/3}-x^{1/3}+1}-\frac{x-1}{x-x^{1/2}}\right)^{10}$, where $x\neq 0,1$ is equal to

5. In the expansion of $\left(3^{\frac{-x}{4}}+3^{\frac{5x}{4}}\right)^{n}$, the sum of binomial coefficients is 64 and the term with the greatest binomial coefficient exceeds the third term by $(n-1)$, then the value of x must be

(1) 0 (2) 1

(3) 2 (4) 3

6. Suppose $\left(\sqrt{2}+1\right)^{n}=p+\beta$ where p is an integer and β is a proper fraction, $n\in N$

If $n=6$ then p is

(1) 196 (2) 197

(3) 198 (4) 199

7. In the expansion of $\left(1+3x+2x^2\right)^6$ the coefficient of x^{11} is

(1) 288 (2) 216

(3) 576 (4) 674

8. The number of distinct terms in the expansion of $\left(x+y^2\right)^{13}+\left(x^2+y\right)^{14}$ is

(1) 27 (2) 29

(3) 28 (4) 25

9. If the number of terms in the expansion of $\left(1-\frac{2}{x}+\frac{4}{x^2}\right)^{n}$, $x\neq 0$, is 13, then the sum of the coefficients of all the terms in this expansion is

(1) 243 (2) 729

(3) 64 (4) 2187

10. The value of $\left({}^{21}C_1-{}^{10}C_1\right)+\left({}^{21}C_2-{}^{10}C_2\right)+\left({}^{21}C_3-{}^{10}C_3\right)+\left({}^{21}C_4-{}^{10}C_4\right)+\ldots+\left({}^{21}C_{10}-{}^{10}C_{10}\right)$ is

(1) $2^{21}-2^{11}$ (2) $2^{21}-2^{10}$

(3) $2^{20}-2^{9}$ (4) $2^{20}-2^{10}$