Name
Date
Course

The Binomial Theorem (Homework)

Use the Binomial Theorem to expand the following expressions.

① $(x+3)^4$

② $(y-5)^3$

③ $(k+10)^6$

④ $(x-1)^5$

⑤ $(4a-b)^5$

⑥ $(L^3+t^9)^4$

⑦ $(6m^5+5p^2)^3$

⑧ Find the coefficient of the m^3 term in the expansion of $(m-6)^5$.

⑨ Find the coefficient of the y term in the expansion of $(2y+1)^8$.

⑩ Find the fourth term in the expansion of $(m^5-2)^{10}$.

⑪ Find the second term in the expansion of $(x+9)^4$.

Answers

1. $x^4 + 12x^3 + 54x^2 + 108x + 81$
2. $y^3 - 15y^2 + 75y - 125$
3. $k^6 + 60k^5 + 1500k^4 + 20{,}000k^3 + 150{,}000k^2 + 600{,}000k + 1{,}000{,}000$
4. $x^5 - 5x^4 + 10x^3 - 10x^2 + 5x - 1$
5. $1024a^5 - 1280a^4b + 640a^3b^2 - 160a^2b^3 + 20ab^4 - b^5$
6. $L^{12} + 4L^9t^9 + 6L^6t^{18} + 4L^3t^{27} + t^{36}$
7. $216m^{15} + 540m^{10}p^2 + 450m^5p^4 + 125p^6$
8. 360
9. 16
10. $-960m^{35}$
11. $36x^3$