Answer on Question # 49829, Math, Algebra

(-3^2+2b^5 using Pascal's triangle

Solution.

Write down the first 6 rows of Pascal's triangle

$$
\begin{array}{ccccccc}
& & & 1 & 1 & & & \\
& & 1 & 2 & 1 & & \\
& 1 & 3 & 3 & 1 & \\
1 & 4 & 6 & 4 & 1 \\
1 & 5 & 10 & 10 & 5 & 1
\end{array}
$$

So we have

$$
\left(-3^2+2b\right)^5 = \left(2b-9\right)^5 = \left(2b\right)^5 - 5\cdot\left(2b\right)^4\cdot 9 + 10\cdot\left(2b\right)^3\cdot 9^2 - 10\cdot\left(2b\right)^2\cdot 9^3 + 5\cdot 2b\cdot 9^4 - 9^5 =
$$
$$
= 32b^5 - 720b^4 + 6480b^3 - 29160b^2 + 65610b - 59049.
$$

Answer: $\left(-3^2+2b\right)^5 = 32b^5 - 720b^4 + 6480b^3 - 29160b^2 + 65610b - 59049.$