

In-class Quiz #5

Math 475

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If $(2x^2 + y - z)^{18}$ is completely expandable,
what is the coefficient of $x^4 y z^{15}$

~~the entire expansion is~~

$$\text{note } x^4 y z^{15} = (x^2)^2 y z^{15}$$

$$\text{coefficient} = \binom{18}{2, 1, 15} \cdot (2x^2)^2 \cdot y \cdot (-z)^{15}$$

$$= -4 \binom{18}{2, 1, 15} \cdot x^4 y z^{15}$$

$$= (-4) \cdot \frac{18!}{2! 1! 15!} x^4 y z^{15}$$