

Pascal's Triangle

							1							
						1		1						
				1		2		1						
		1		3		3		1						
	1		4		6		4		1					
1		5		10		10		5		1				
1	6		15		20		15		6		1			
1	7	21		35		35		21		7		1		
1	8	28	56	70	56	28	8	1						

1. Expand: $(Q + 2)^4$

2. Expand: $(4M - 3)^5$

3. Expand: $(3W + 2)^6$

1. Expand: $(Q + 2)^4$

$$\begin{array}{c} 1Q^4 + 4Q^3 + 6Q^2 + 4Q + 1 \cdot 2^4 \\ \checkmark \quad \checkmark \quad \checkmark \quad \checkmark \quad \checkmark \end{array}$$

$$Q^4 + 8Q^3 + 24Q^2 + 32Q + 16$$

2. Expand: $(4M - 3)^5$

Use Row 5 of Pascal's Triangle: 1 5 10 10 5 1

$$\begin{array}{cccccc} 1 & 5 & 10 & 10 & 5 & 1 \\ \hline 1 & - 5 & + 10 & - 10 & + 5 & - 1 \\ \hline 1(4m)^5 & - 5(4m)^4(3) & + 10(4m)^3(3)^2 & - 10(4m)^2(3)^3 & + 5(4m)(3)^4 & - 1(3)^5 \\ \hline 1024m^5 & - 3840m^4 & + 5760m^3 & - 4320m^2 & + 1620m & - 243 \end{array}$$