

Math SL Exercises on the Binomial Theorem

[1] Roll three dice and count the number of 5s that show. Make a table to show the probability of each outcome by expanding $\left(\frac{1}{6} + \frac{5}{6}\right)^3$.

X	0	1	2	3
P(X=x)				

[2] Toss 20 coins and let X be the number of heads that show. Find the following:

[a] $P(X = 10)$

[b] $P(X = 9)$

[c] $P(X = 12)$

[3] Expand the following.

[a] $(x + 2y)^4$

[b] $(3x - 2)^5$

[c] $(x^3 + 3)^6$

[d] $\left(2x^2 - \frac{1}{x}\right)^4$