

$$\begin{aligned}
 & (3x - 2y)^6 \\
 & + \binom{6}{1} (3x)^5 (-2y)^1 \\
 & + \binom{6}{2} (3x)^4 (-2y)^2 + \binom{6}{3} (3x)^3 (-2y)^3 + \binom{6}{4} (3x)^2 (-2y)^4 \\
 & + \binom{6}{5} (3x)^1 (-2y)^5 + \binom{6}{6} (-2y)^6
 \end{aligned}$$

$$\binom{6}{3} = \frac{6 \cdot 5 \cdot 4}{6 \cdot 1} = \frac{243}{3} = 81$$

$$\begin{aligned}
 & = 729x^6 - 2916x^5y + 4860x^4y^2 - 4320x^3y^3 \\
 & + 2160x^2y^4 - 576xy^5 + 64y^6
 \end{aligned}$$

#2. $(4x^2 - \frac{3}{x^3})^{10}$

$$x^{10}$$

$$\binom{10}{4} (4x^2)^6 \left(\frac{-3}{x^3}\right)^4 = \frac{210 \cdot 256 \cdot 729}{x^{10}}$$

$$= \frac{39191040}{x^{10}}$$

$$\frac{10 \cdot 9 \cdot 8 \cdot 7}{4 \cdot 3 \cdot 2 \cdot 1} = 210$$

Using Counting Techniques 1K

#1. $26 \cdot 25 \cdot 24 = 15600$

#2(a) $12! = 479001600$

(b) $4! \cdot 3! \cdot 4! \cdot 2! \cdot 3! = 41472$

↑ ↑ ↑ ↑ ↑
order math sci geo hist
of subjects

#3. A B C D E F G H $\binom{8}{4} = \frac{\cancel{8 \cdot 7 \cdot 6 \cdot 5}}{\cancel{4 \cdot 3 \cdot 2}} = 70$

#4.(a) $\binom{20}{4} = \frac{\cancel{20 \cdot 19 \cdot 18 \cdot 17}}{\cancel{4 \cdot 3 \cdot 2}} = 4845$

(b)

$\binom{12}{1}$	$\binom{8}{1}$	$\binom{18}{2}$
G	B	

* $\binom{20}{4} - \overset{GGGG}{\binom{12}{4}} - \overset{BBBB}{\binom{8}{4}} = 2280$

#5 (a) $\frac{6}{} \cdot \frac{7}{} \cdot \frac{7}{} \cdot \frac{4}{} = 1176$

↑
no 0
↓
↑
must be 0

(b) $\frac{6}{} \cdot \frac{7}{} \cdot \frac{7}{} \cdot \frac{1}{} = 294$

(c) $\frac{6}{} \cdot \frac{5}{} \cdot \frac{4}{} \cdot \frac{1}{} = 120$

$\frac{5}{} \cdot \frac{5}{} \cdot \frac{4}{} \cdot \frac{3}{} = 300$

↑ no zero 0 could go here

$\frac{3}{2,4,6}$ $\frac{420}{}$

How many arrangements are there for the letters in WEEK

$\frac{4!}{2!} = 12$

the letters in MISSISSIPPI

$\frac{11!}{4! 4! 2!} = 34650$

#6

L L L D D D

Mon 9-11 Answer test review questions

Wed 9-13 TEST on chap 1