**Binomial Expansion GREEN**

1. What is the expansion of:

a. (a + 2)4

 b. (x – 3)5

c. (2x – 3)3

2. Find the coefficient of x3 in the expansions of:

a. (x + 2)6

b. (3 + 2x)3

c. (3 – 2x)4

3. Use the binomial expansion to find the first four terms, in ascending powers of x, of:

 a. (x + 4)6

 b. (1 – 2x)7

 c. (2 + 5x)4

 d. (1 + $\frac{x}{2}$)8

4. The coefficient of x3 in the expansion of (3 + bx)5 is -720. Find the value of the constant b.

**Binomial Expansion AMBER**

1. What is the expansion of:

a. (a + 2)4

 1 \_\_\_\_\_\_\_\_\_ + 4 \_\_\_\_\_\_\_\_\_ + 6 \_\_\_\_\_\_\_\_\_ + 4 \_\_\_\_\_\_\_\_\_ + 1 \_\_\_\_\_\_\_\_\_

 b. (x – 3)5

c. (2x – 3)3

2. Find the coefficient of x3 in the expansions of:

a. (x + 2)6

 $\left(\begin{matrix}6\\3\end{matrix}\right)$ x 3 23 =

b. (3 + 2x)3

c. (3 – 2x)4

3. Use the binomial expansion to find the first four terms, in ascending powers of x, of:

 a. (x + 4)6

 $\left(\begin{matrix}6\\0\end{matrix}\right)$ x 0 46 + $\left(\begin{matrix}6\\1\end{matrix}\right)$ x 1 45 + $\left(\begin{matrix}6\\2\end{matrix}\right)$ x 2 44 + $\left(\begin{matrix}6\\3\end{matrix}\right)$ x 3 43

 b. (1 – 2x)7

 c. (2 + 5x)4

 d. (1 + $\frac{x}{2}$)8

4. The coefficient of x3 in the expansion of (3 + bx)5 is -720. Find the value of the constant b.

 $\left(\begin{matrix}5\\3\end{matrix}\right)$ (bx)3 32 = -720 x 3

**Binomial Expansion RED**

1. What is the expansion of:

a. (a + 2)4

 1 a 4 20 + 4 a 3 21 + 6 a 2 22 + 4 a 1 23 + 1 a 0 24

 = a 4 +

 b. (x – 3)5

 1 \_\_\_\_\_\_\_\_ + 5 \_\_\_\_\_\_\_\_ + 10 \_\_\_\_\_\_\_\_ + 10 \_\_\_\_\_\_\_\_ + 5 \_\_\_\_\_\_\_\_ + 1 \_\_\_\_\_\_\_\_

c. (2x – 3)3

2. Find the coefficient of x3 in the expansions of:

a. (x + 2)6

 $\left(\begin{matrix}6\\3\end{matrix}\right)$ x 3 23 =

b. (3 + 2x)3

c. (3 – 2x)4

3. Use the binomial expansion to find the first four terms, in ascending powers of x, of:

 a. (x + 4)6

 $\left(\begin{matrix}6\\0\end{matrix}\right)$ x 0 46 + $\left(\begin{matrix}6\\1\end{matrix}\right)$ x 1 45 + $\left(\begin{matrix}6\\2\end{matrix}\right)$ x 2 44 + $\left(\begin{matrix}6\\3\end{matrix}\right)$ x 3 43

 = 4096 +

 b. (1 – 2x)7

 c. (2 + 5x)4

 d. (1 + $\frac{x}{2}$)8

4. The coefficient of x3 in the expansion of (3 + bx)5 is -720. Find the value of the constant b.

 $\left(\begin{matrix}5\\3\end{matrix}\right)$ (bx)3 32 = -720 x 3