afsnit 5.3

opgave 7

a)

$$\frac{10!}{4!\cdot(10-4)!} = 210$$

b)

$$\frac{10!}{4!\cdot(10-4)!} + \frac{10!}{3!\cdot(10-3)!} + \frac{10!}{2!\cdot(10-2)!} + \frac{10!}{1!\cdot(10-1)!} + \frac{10!}{0!\cdot(10-0)!} = 386$$

c)

$$\frac{10!}{4!\cdot(10-4)!} + \frac{10!}{5!\cdot(10-5)!} + \frac{10!}{6!\cdot(10-6)!} + \frac{10!}{7!\cdot(10-7)!} + \frac{10!}{8!\cdot(10-8)!} + \frac{10!}{9!\cdot(10-9)!} + \frac{10!}{10!\cdot(10-10)!} = 848$$

d)

$$\frac{10!}{5!\cdot(10-5)!} = 252$$

opgave 27

a)

$$\frac{25!}{4!\cdot(25-4)!} = 12650$$

b)

$25\cdot 24\cdot 23\cdot 22 = 303600$

opgave 33

$$\frac{10!}{3!(10-3)!}\cdot\frac{15!}{3!(15-3)!} = 54600$$

afsnit 5.4

opgave 3

$$(x+y)^6 \overset{\text{expand}}{=} x^6 + 6x^5y + 15x^4y^2 + 20x^3y^3 + 15x^2y^4 + 6xy^5 + y^6$$

$$\begin{bmatrix} n \\ k \end{bmatrix} = \frac{n!}{k!(n-k)!}$$

$$\begin{bmatrix} 6 \\ 0 \end{bmatrix} x^6 + \begin{bmatrix} 6 \\ 1 \end{bmatrix} x^5 \cdot y^1 + \begin{bmatrix} 6 \\ 2 \end{bmatrix} x^4 \cdot y^2 + \begin{bmatrix} 6 \\ 3 \end{bmatrix} x^3 \cdot y^3 + \begin{bmatrix} 6 \\ 4 \end{bmatrix} x^2 \cdot y^4 + \begin{bmatrix} 6 \\ 5 \end{bmatrix} x^1 \cdot y^5 + \begin{bmatrix} 6 \\ 6 \end{bmatrix} y^6$$

$$\frac{6!}{0!(6-0)!} x^6 + \frac{6!}{1!(6-1)!} x^5 \cdot y^1 + \frac{6!}{2!(6-2)!} x^4 \cdot y^2 + \frac{6!}{3!(6-3)!} x^3 \cdot y^3 + \frac{6!}{4!(6-4)!} x^2 \cdot y^4 + \frac{6!}{5!(6-5)!} x^1 \cdot y^5 + \frac{6!}{6!(6-6)!} y^6$$
$$= x^6 + 6\,x^5\,y + 15\,x^4\,y^2 + 20\,x^3\,y^3 + 15\,x^2\,y^4 + 6\,x\,y^5 + y^6$$

opgave 5
svar er 101 se side 363 theorom 1

opgave 7

$(2-x)^{19} = (2-x)^{19}$ expand =
$$-x^{19} + 38\,x^{18} - 684\,x^{17} + 7752\,x^{16} - 62016\,x^{15} + 372096\,x^{14} - 1736448\,x^{13} + 6449664\,x^{12} - 19348992\,x^{11} + 47297536\,x^{10} - 94595072\,x^9 + 154791936\,x^8 - 206389248\,x^7 + 222265344\,x^6 - 190513152\,x^5 + 127008768\,x^4 - 63504384\,x^3 + 22413312\,x^2 - 4980736\,x + 524288$$

$x^9 = 94595072$

opgave 19