Oppgave 10

```
<< "BarCharts` "; << "Histograms` "; << "PieCharts` "
```

Velger at parametre som er personavhengige skal kunne varieres i argumentlistene til funksjonene. Dette gir mulighet for kjøringer med flere enn enn person.

```
alder = 40;
tOv = 10;
L = 400 000;
x = alder - tOv;
n = 67 - x;
```

Parametre som skal ligge fast:

```
a = 0.04;
a67 = 13.26;
m = 0.01;
i = 0.03;
gG = 0.03;
G = 58 778;
alfa = 0;
beta = 0.0000014;
c = 1.14;
v = (1 + gG)/(1 + a);
p1 = 0.05;
p2 = 0.08;
```

Overlevelsessannsynlighet. Legger til 1 i parameternavnene, siden verdiene på disse egentlig allerede er satt.

```
tpx[x1_, t1_] := e^(-alfa t1 - beta c^x1 (c^t1 - 1)/Log[c]);
```

Innskudd og ytelse IP:

```
p[L1_] := Min[Max[0, L1 - 2 G], 4 G] p1 + Min[Max[0, L1 - 6 G], 6 G] p2;
sIP[t1_, n1_, L1_] := p[L1] If[v ≠ 1, (1 + a)^(n1-t1) (v^(n1-t1) - 1)/(Log[v] a67), (1 + a)^(n1-t1) (n1 - t1)/a67];
```

Ytelse og verdi av fripolise ved pensjonsalder:

```
f[L1_] := 0.75 G + 0.42 Max[0, Min[L1 - G, 5 G]] + 1/3 0.42 Max[0, Min[L1 - 6 G, 6 G]];

sYP[pAP_, x1_, L1_] := Min[1., 1/30 Round[67 - x1]] Max[0., pAP Min[12 G, L1] - f[L1]];

opptjent[pAP_, x1_, tOv1_, n1_, L1_] :=
  (100 (tOv1 sYP[pAP, x1, L1] (1 + Max[0, Min[gG, a - i - m]])^(n1-tOv1)))/
    (n1 (L1 (1 + gG)^(n1-tOv1)));
```

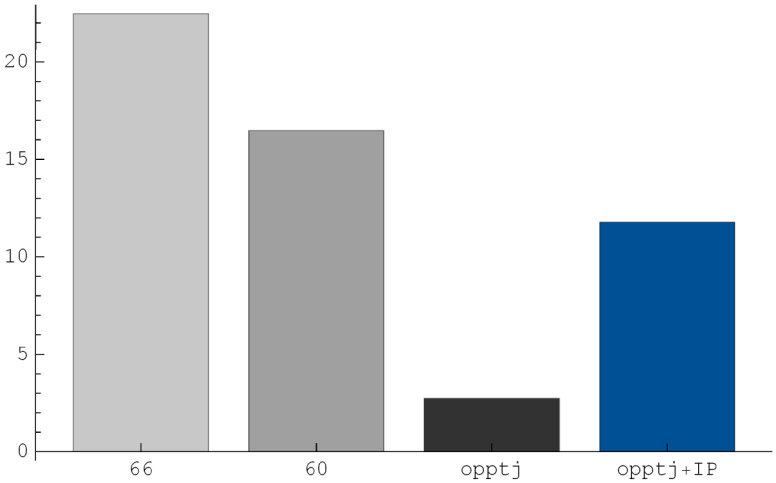
Premieintensitet YP:

```
sumIntensiteter = Log[1 + gG] - Max[0, Log[1 + a] - Log[1 + i + m]];

premie[pAP_, x1_, t1_, n1_, L1_, j_] := 1/(n1 (1 + i)^(n1-(t1+j))) (1 + sumIntensiteter (t1 + j))
   sYP[pAP, x1, L1] (1 + gG)^j tpx[x1 + t1 + j, n1 - (t1 + j)] a67;
```

Pensjonsnivå:

```
BarChart[{(100 sYP[0.66`, x, L])/L, (100 sYP[0.6`, x, L])/L,
  opptjent[0.66`, x, tOv, n, L], opptjent[0.66`, x, tOv, n, L] + (100 sIP[tOv, n, L])/(L (1 + gG)^(n-tOv))},
 BarStyle -> {RGBColor[200/255, 200/255, 200/255], RGBColor[160/255, 160/255, 160/255],
   RGBColor[50/255, 50/255, 50/255], RGBColor[0/255, 80/255, 150/255]},
 Ticks -> {{{1, "66"}, {2, "60"}, {3, "opptj"}, {4, "opptj+IP"}}, Automatic}]
```



Kostnader:

```
Show[BarChart[Table[100 premie[0.66`, x, tOv, n, L, j] / (L (1 + gG)^j), {j, 0, n - tOv}],
  BarStyle → RGBColor[200/255, 200/255, 200/255],
  BarSpacing → -0.2`, DisplayFunction → Identity],
 BarChart[Table[100 p[L] / L, {j, 0, n - tOv}], BarStyle → RGBColor[0/255, 80/255, 150/255],
  BarSpacing → 0.2`, DisplayFunction → Identity],
 PlotRange → {0, 20}, DisplayFunction → $DisplayFunction,
 Ticks → {None, Automatic}, AspectRatio → 0.2`, ImageSize → 800]
```