In[9]:=
```
fi[R_] := R - (c * H^2 * (b * (R / (c * H^2))^n) / (d * (R / (c * H^2))^n) + 1);
```

In[10]:=
```
FullSimplify[D[fi[R], R]]
```

Out[10]=
$$\frac{-b\,c\,H^2\,n\left(\frac{R}{c\,H^2}\right)^n + R\left(1+d\left(\frac{R}{c\,H^2}\right)^n\right)^2}{R\left(1+d\left(\frac{R}{c\,H^2}\right)^n\right)^2}$$

In[11]:=
```
FullSimplify[D[(-b c H^2 n (R/(c H^2))^n + R (1 + d (R/(c H^2))^n)^2)/(R (1 + d (R/(c H^2))^n)^2), R]]
```

Out[11]=
$$\frac{b\,n\left(\frac{R}{c\,H^2}\right)^{-1+n}\left(1-n+d\,(1+n)\left(\frac{R}{c\,H^2}\right)^n\right)}{R\left(1+d\left(\frac{R}{c\,H^2}\right)^n\right)^3}$$

Gamma = Dfi/(R*DDfi)

In[12]:=
```
FullSimplify[
 ((-b c H^2 n (R/(c H^2))^n + R (1 + d (R/(c H^2))^n)^2)/(R (1 + d (R/(c H^2))^n)^2))/
  (R * ((b n (R/(c H^2))^(-1+n) (1 - n + d (1 + n) (R/(c H^2))^n)) /
     (R (1 + d (R/(c H^2))^n)^3))) ]
```

Out[12]=
$$\left(\left(\frac{R}{c\,H^2}\right)^{1-n}\left(1+d\left(\frac{R}{c\,H^2}\right)^n\right)\left(-b\,c\,H^2\,n\left(\frac{R}{c\,H^2}\right)^n + R\left(1+d\left(\frac{R}{c\,H^2}\right)^n\right)^2\right)\right)\Big/ \left(b\,n\,R\left(1-n+d\,(1+n)\left(\frac{R}{c\,H^2}\right)^n\right)\right)$$

Sea r = R/(cH ^ 2)

In[13]:=
```
FullSimplify[
 ((r)^(1-n) (1 + d (r)^n) (-b c H^2 n (r)^n + R (1 + d (r)^n)^2)) / (b n R (1 - n + d (1 + n) (r)^n))]
```

Out[13]=
$$\frac{r^{1-n}\,(1+d\,r^n)\,(-b\,c\,H^2\,n\,r^n + (1+d\,r^n)^2\,R)}{b\,n\,(1-n+d\,(1+n)\,r^n)\,R}$$

reemplazo abajo R por r * c * H ^ 2

In[17]:=
```
FullSimplify[(r^(1-n) (1 + d r^n) (-b c H^2 n r^n + (1 + d r^n)^2 R))/(b n (1 - n + d (1 + n) r^n) r * c * H^2)]
```

Out[17]=
$$\frac{r^{-n}\,(1+d\,r^n)\,(-b\,c\,H^2\,n\,r^n + (1+d\,r^n)^2\,R)}{b\,c\,H^2\,n\,(1-n+d\,(1+n)\,r^n)}$$

reemplazo arriba R por r * c * H ^ 2 y simplifico

$$\frac{r^{-n}\,(1+d\,r^{n})\,\left(-b\,n\,r^{n}+(1+d\,r^{n})^{2}\,r\right)}{b\,n\,(1-n+d\,(1+n)\,r^{n})}$$

Out[20]= 0