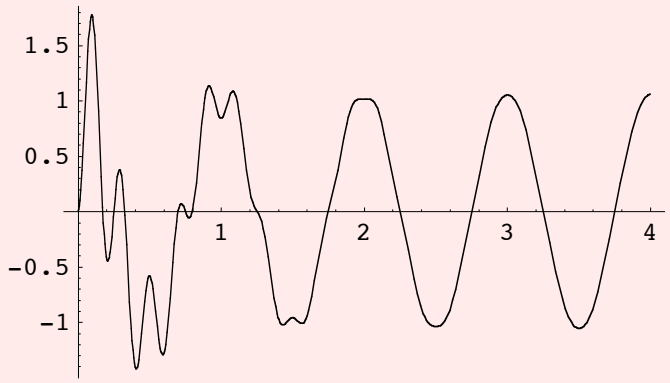
In[19]:=

```
Clear[x, w, wo, w1]
(*The following numerical information
  is given for an example problem in the text.*)
w = 2 * Pi;
wo = 5 * w;
beta - wo / 20;
fo = 1000;
w1 = 9.987 * Pi;
x[t_] :=
 1.06 * Cos[w * t - .0208] - Exp[-wo * t / 20] * (1.05 * Cos[w1 * t] + .0572 * Sin[w1 * t])
```

In[26]:=

```
Plot[x[t], {t, 0, 4}]
```

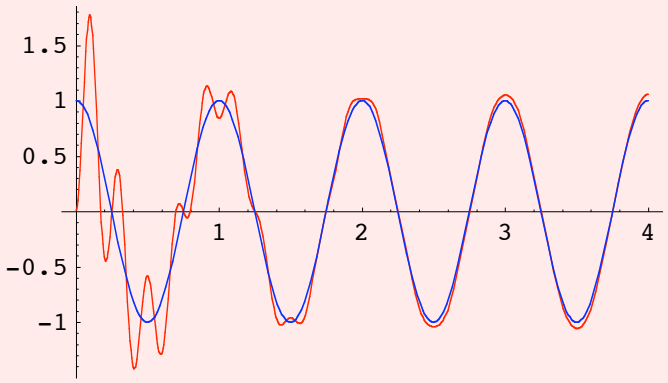


Out[26]=

```
- Graphics -
```

In[27]:=

```
f[t_] := (fo / 1000) * Cos[w * t]
Plot[{x[t], f[t]}, {t, 0, 4},
 PlotStyle → {RGBColor[1, 0, 0], RGBColor[0, 0, 1]}]
```



Out[28]=

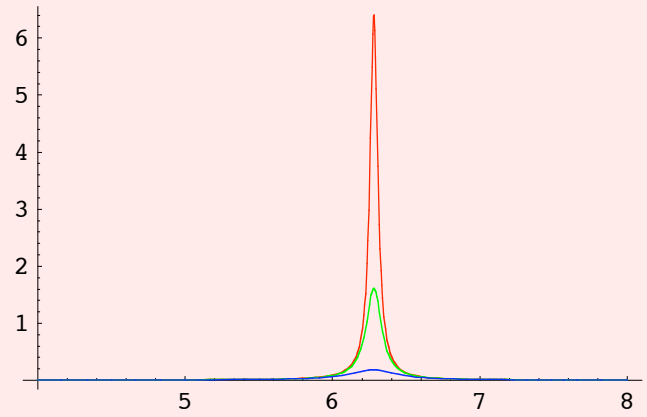
```
- Graphics -
```

In[29]:=

```
Clear[w, beta, n]
wo = 2 * Pi;
A2[w_, beta_] := ((wo^2 - w^2)^2 + 4 * beta^2 * w^2)^(-1)
A2[w, .01 * wo]
Plot[{A2[w, .005 * wo], A2[w, .01 * wo], A2[w, .03 * wo]}, {w, 4, 8}, PlotStyle →
  {RGBColor[1, 0, 0], RGBColor[0, 1, 0], RGBColor[0, 0, 1]}, PlotRange → All]
```

Out[32]=

$$\frac{1}{0.0157914\, w^2 + (4\,\pi^2 - w^2)^2}$$



Out[33]=

```
- Graphics -
```

In[34]:=

```
betalist = {.005 * wo, .01 * wo, .03 * wo};
Print["Q="]
Qlist = wo / (2 * betalist)
```

Q=

Out[36]=

```
{100., 50., 16.6667}
```