$$\phi[p\_] := \text{ArcTan}\left[\frac{2\,\zeta\,p\,\Omega}{1 - p^2\,\Omega^2}\right]$$

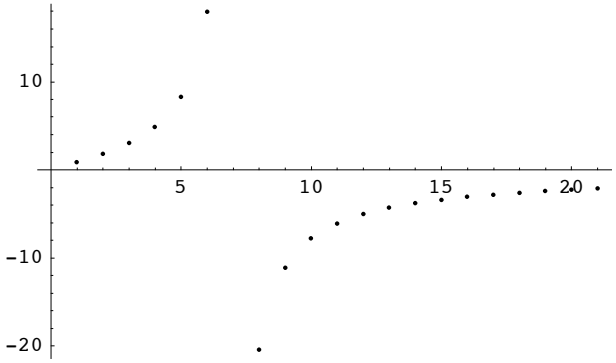
$$\phi\text{list} = \text{Table}\left[\frac{180\,\phi[p]}{\pi} /. \left\{\zeta \to 0.05,\ \Omega \to \frac{1}{7}\right\},\ \{p,\ 1,\ 21\}\right]$$

Power::infy : Infinite expression $\frac{1}{0}$ encountered. More...

{0.835504, 1.78196, 3.00527, 4.84984, 8.29714, 17.9044, Indeterminate, −20.4723, −11.1377, −7.81529, −6.10426, −5.05301, −4.33663, −3.81407, −3.41417, −3.09704, −2.83859, −2.62335, −2.44094, −2.28409, −2.14759}

```
ListPlot[φlist];
```

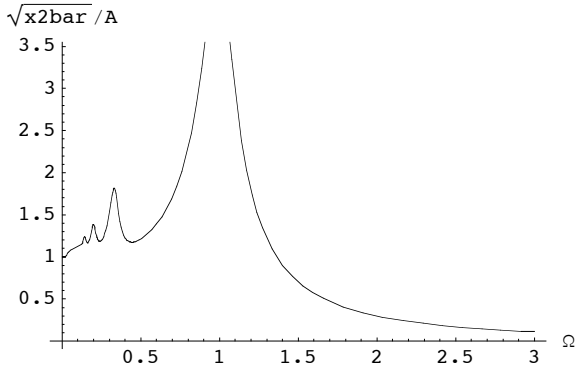
Graphics::gptn : Coordinate Indeterminate in {7, Indeterminate} is not a floating−point number. More...



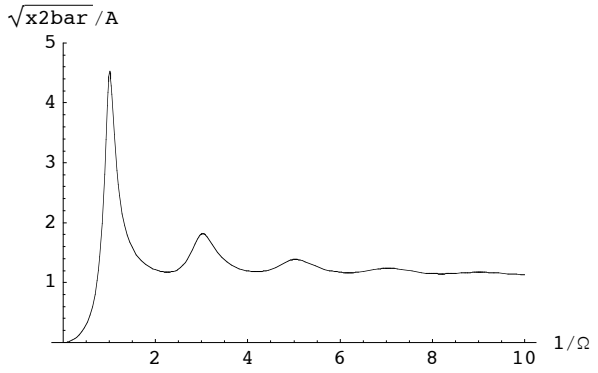
$$\text{x2baroverA2} = \frac{8}{\pi^2\ (p^2\ ((1 - p^2\ \Omega^2)^2 + 4\ \zeta^2\ p^2\ \Omega^2))}$$

$$\frac{8}{p^2\,\pi^2\,(4\,p^2\,\zeta^2\,\Omega^2 + (1 - p^2\,\Omega^2)^2)}$$

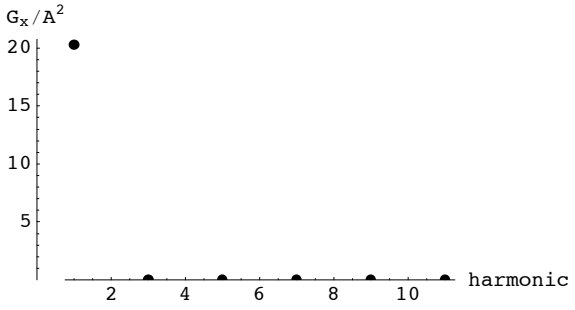
$$\text{Plot}\left[\sqrt{\sum_{\substack{p=1 \\ \Delta\,p=2}}^{31} (\text{x2baroverA2} /. \{\zeta \to 0.1\})},\ \{\Omega,\ .001,\ 3\},\ \text{AxesLabel} \to \left\{"\Omega",\ "\sqrt{\text{x2bar}}\,/\text{A}"\right\}\right];$$



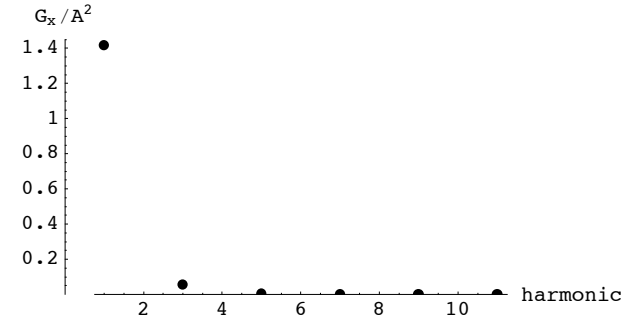
```
Plot[Sqrt[Sum[(x2baroverA2 /. {ζ → 0.1, Ω → 1/r}), {p, 1, 31, Δp=2}]],
  {r, .001, 10}, PlotRange → {0, 5}, AxesLabel → {"1/Ω", "√x2bar /A"}];
```



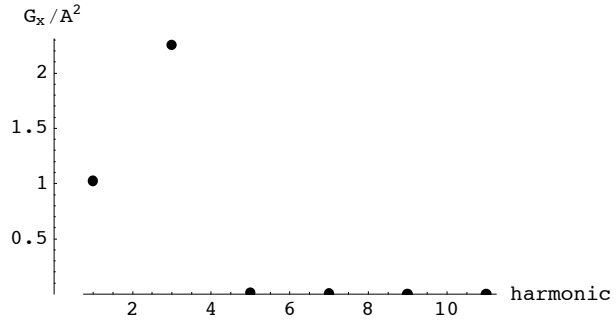

```
ListPlot[Table[{2 i - 1, 8/(π² (p² ((1 - p² Ω²)² + 4 ζ² p² Ω²))) /. {ζ → 0.1, Ω → 1, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "Gx/A²"}];
```



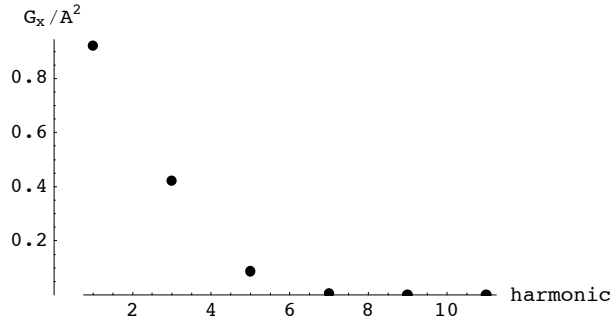

```
ListPlot[Table[{2 i - 1, 8/(π² (p² ((1 - p² Ω²)² + 4 ζ² p² Ω²))) /. {ζ → 0.1, Ω → 1/2, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "Gx/A²"}];
```



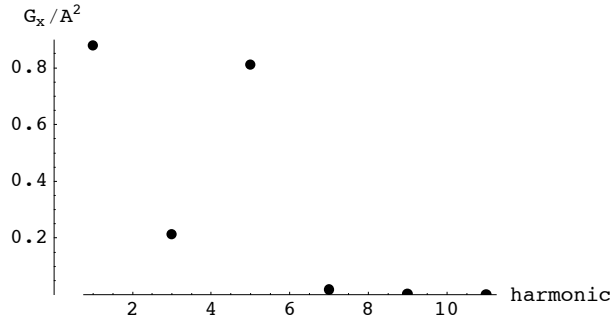
```
ListPlot[Table[{2 i - 1, 8/(π^2 (p^2 ((1 - p^2 Ω^2)^2 + 4 ζ^2 p^2 Ω^2))) /. {ζ → 0.1, Ω → 1/3, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "G_x/A^2"}];
```



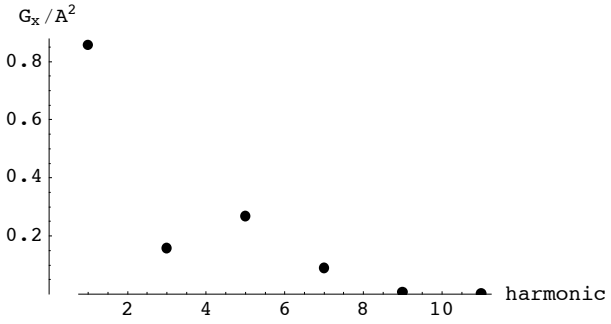

```
ListPlot[Table[{2 i - 1, 8/(π^2 (p^2 ((1 - p^2 Ω^2)^2 + 4 ζ^2 p^2 Ω^2))) /. {ζ → 0.1, Ω → 1/4, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "G_x/A^2"}];
```



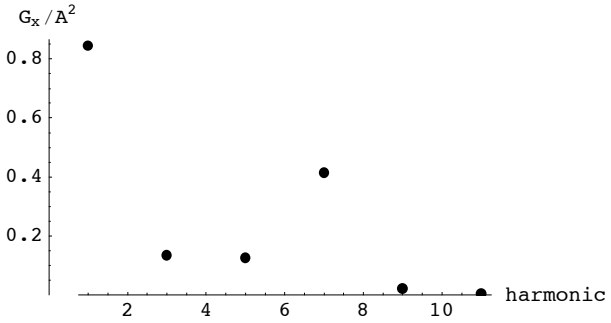

```
ListPlot[Table[{2 i - 1, 8/(π^2 (p^2 ((1 - p^2 Ω^2)^2 + 4 ζ^2 p^2 Ω^2))) /. {ζ → 0.1, Ω → 1/5, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "G_x/A^2"}];
```



```
ListPlot[Table[{2 i - 1, 8/(π^2 (p^2 ((1 - p^2 Ω^2)^2 + 4 ζ^2 p^2 Ω^2))) /. {ζ → 0.1, Ω → 1/6, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "G_x/A^2"}];
```




```
ListPlot[Table[{2 i - 1, 8/(π^2 (p^2 ((1 - p^2 Ω^2)^2 + 4 ζ^2 p^2 Ω^2))) /. {ζ → 0.1, Ω → 1/7, p → 2 i - 1}},
  {i, 6}], PlotRange → {0, Automatic}, AxesOrigin → {0, 0},
 Prolog → AbsolutePointSize[5], AxesLabel → {"harmonic", "G_x/A^2"}];
```




```
A[p_] := 4/(π (p Sqrt[(1 - p^2 Ω^2)^2 + 4 ζ^2 p^2 Ω^2])) /. {ζ → 0.1, Ω → 1/3}

φ[p_] := ϕ[p] /. {ζ → 0.1, Ω → 1/3};

x[P_, Ψ_] := A[p] Sin[P Ψ - φ[P] ]
```

```
Plot[(x[p, ψ] /. p -> 1) + Limit[x[p, ψ], p -> 3] + (x[p, ψ] /. p -> 5) + (x[p, ψ] /. p -> 7) +
    (x[p, ψ] /. p -> 9), {ψ, 0, 2 π}];
```