

```

Lambda11 = 2 α² δ η;
Lambda02 = 2 α² (2 δ - n);
LambdaEss = α² (δ - (n-2)/2)²;

δ /. Solve[15 == (δ - (n-2)/2)² /. n → 5, δ][[2]]

P0 = Plot[{(δ - (n-2)/2)² /. n → 5, 15}, {δ, 0, %},
  PlotStyle → {Black, Black}, Filling → {1 → {2}}, FillingStyle → GrayLevel[0.8],
  PlotStyle → {Black, Black}, PlotRange → {All, {-5, 15}}];

P1 = Plot[(δ - (n-2)/2)² /. n → 5, {δ, 0, 6}, PlotStyle → {Black, Thick},
  PlotRange → {All, {-5, 15}}];

Res = Solve[3 == η (η + n - 2) /. n → 5, η][[2]]
P2 = Plot[2 δ η /. Res, {δ, 0, 6},
  PlotStyle → {Black, Thick, Dotted}, PlotRange → {All, {-5, 15}}];

P3 = Plot[2 δ η /. Res, {δ, 1/2 (-2 + n + 2 η + 2 √(-2 η + n η + η²)) /. {n → 5, Res[[1]]}, 6},
  PlotStyle → {Black, Thick}, PlotRange → {All, {-5, 15}}];

P4 = Plot[2 (2 δ - n) /. {n → 5, Res[[1]]}, {δ, 0, 6},
  PlotStyle → {Black, Thick, Dotted}, PlotRange → {All, {-5, 15}}];

P5 = Plot[2 (2 δ - n) /. {n → 5, Res[[1]]}, {δ, (n+2)/2 /. {n → 5, Res[[1]]}, 6},
  PlotStyle → {Black, Thick}, PlotRange → {All, {-5, 15}}];

P6 = ListLinePlot[{{(n+2)/2, 0}, {(n+2)/2, 4}} /. n → 5, PlotStyle → {Black, Dashed}];

P7 = ListLinePlot[
  {{1/2 (-2 + n + 2 η + 2 √(-2 η + n η + η²)), 0}, {1/2 (-2 + n + 2 η + 2 √(-2 η + n η + η²)), 6.4}} /.
  {n → 5, Res[[1]]}, PlotStyle → {Black, Dashed}];

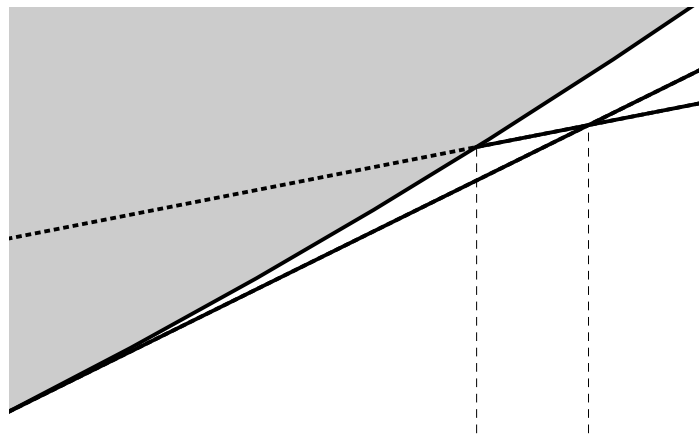
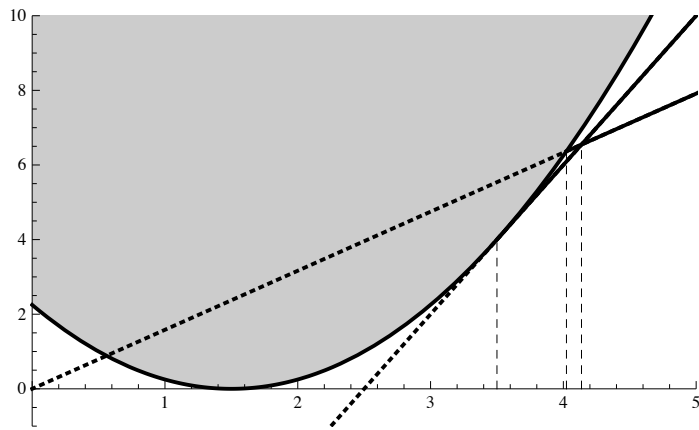
P8 = ListLinePlot[{{n/(2-η), 0}, {n/(2-η), 6.55}} /. {n → 5, Res[[1]]},
  PlotStyle → {Black, Dashed}];

Show[P0, P1, P2, P3, P4, P5, P6, P7, P8, PlotRange → {{0, 5}, {-1, 10}}]
Show[%, PlotRange → {{3.55, 4.25}, {4, 7.5}}]

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$$\frac{1}{2} (3 + 2 \sqrt{15})$$

$$\left\{ \eta \rightarrow \frac{1}{2} (-3 + \sqrt{21}) \right\}$$



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P1 = ListLinePlot[{{-2, 0}, {2, 0}, {2, -2}, {-2, -2}, {-2, 0}},
  PlotStyle → Black, Filling → Bottom, FillingStyle → Opacity[0.1],
  PlotRange → {{-2.19, 2.19}, {-2.09, 0.09}}, AspectRatio → 1.25];
P2 = ListLinePlot[{{-0.5, 0}, {0.5, 0}, {0.5, -0.25}, {-0.5, -0.25}, {-0.5, 0}},
  PlotStyle → Black, Filling → Bottom, FillingStyle → Opacity[0.2],
  PlotRange → {{-2.19, 2.19}, {-2.09, 0.09}}, AspectRatio → 1.25];
P3 = ListLinePlot[{{-0.5, -5/8}, {0.5, -5/8}, {0.5, -7/8}, {-0.5, -7/8},
  {-0.5, -5/8}}, PlotStyle → Black, Filling → Bottom, FillingStyle → Opacity[0.2],
  PlotRange → {{-2.19, 2.19}, {-2.09, 0.09}}, AspectRatio → 1.25];
Show[
  P1,
  P2,
  P3]

```

