In[•]:=
```
First@Solve[a x + b == 0, x]
```

Out[•]=

$$\left\{x \to -\frac{b}{a}\right\}$$

In[•]:=
```
First@Solve[a x^2 + b x + c == 0, x]
```

Out[•]=

$$\left\{x \to \frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,a}\right\}$$

In[•]:=
```
First@Solve[a x^3 + b x^2 + c x + d == 0, x]
```

Out[•]=

$$\left\{x \to -\frac{b}{3\,a} - \frac{2^{1/3}\left(-b^2 + 3\,a\,c\right)}{3\,a\left(-2\,b^3 + 9\,a\,b\,c - 27\,a^2\,d + \sqrt{4\left(-b^2 + 3\,a\,c\right)^3 + \left(-2\,b^3 + 9\,a\,b\,c - 27\,a^2\,d\right)^2}\right)^{1/3}} + \frac{\left(-2\,b^3 + 9\,a\,b\,c - 27\,a^2\,d + \sqrt{4\left(-b^2 + 3\,a\,c\right)^3 + \left(-2\,b^3 + 9\,a\,b\,c - 27\,a^2\,d\right)^2}\right)^{1/3}}{3 \times 2^{1/3}\,a}\right\}$$

In[•]:=
```
First@Solve[a x^4 + b x^3 + c x^2 + d x + e == 0, x]
```

Out[•]=

$$\left\{x \to -\frac{b}{4a} - \frac{1}{2}\sqrt{\left(\frac{b^2}{4a^2} - \frac{2c}{3a} + \left(2^{1/3}\left(c^2 - 3bd + 12ae\right)\right)\Big/\left(3a\left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace + \sqrt{-4\left(c^2 - 3bd + 12ae\right)^3 + \left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace\right)^2}\right)^{1/3}\right) + \frac{1}{3\times 2^{1/3}a}\left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace + \sqrt{-4\left(c^2 - 3bd + 12ae\right)^3 + \left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace\right)^2}\right)^{1/3}\right)} - \frac{1}{2}\sqrt{\left(\frac{b^2}{2a^2} - \frac{4c}{3a} - \left(2^{1/3}\left(c^2 - 3bd + 12ae\right)\right)\Big/\left(3a\left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace + \sqrt{-4\left(c^2 - 3bd + 12ae\right)^3 + \left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace\right)^2}\right)^{1/3}\right) + \frac{1}{3\times 2^{1/3}a}\left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace + \sqrt{-4\left(c^2 - 3bd + 12ae\right)^3 + \left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace\right)^2}\right)^{1/3} - \left(-\frac{b^3}{a^3} + \frac{4bc}{a^2} - \frac{8d}{a}\right)\Big/\left(4\sqrt{\left(\frac{b^2}{4a^2} - \frac{2c}{3a} + \left(2^{1/3}\left(c^2 - 3bd + 12ae\right)\right)\Big/\left(3a\left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace + \sqrt{-4\left(c^2 - 3bd + 12ae\right)^3 + \left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace\right)^2}\right)^{1/3}\right) + \frac{1}{3\times 2^{1/3}a}\left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace + \sqrt{-4\left(c^2 - 3bd + 12ae\right)^3 + \left(2c^3 - 9bcd + 27ad^2 + 27b^2e - 72ace\right)^2}\right)^{1/3}\right)}\right)\right)\right\}$$

In[•]:=
```
First@Solve[a x^4 + b x^3 + c x^2 + d x + e == 0, x] // TeXForm
```

Out[•]//TeXForm=
```
\left\{x\to -\frac{1}{2} \sqrt{\frac{b^2}{4 a^2}+\frac{\sqrt[3]{\sqrt{\left(-72 a c e+27 a
   d+c^2\right)^3}-72 a c e+27 a d^2+27 b^2 e-9 b c d+2 c^3}}{3 \sqrt[3]{2} a}+\frac{\sqrt
   c e+27 a d^2+27 b^2 e-9 b c d+2 c^3\right)^2-4 \left(12 a e-3 b d+c^2\right)^3}-72 a c
   \sqrt{\frac{b^2}{2 a^2}-\frac{-\frac{b^3}{a^3}+\frac{4 b c}{a^2}-\frac{8 d}{a}}{4 \sqr
   b^2 e-9 b c d+2 c^3\right)^2-4 \left(12 a e-3 b d+c^2\right)^3}-72 a c e+27 a d^2+27 b^
   e-3 b d+c^2\right)}}{3 a \sqrt[3]{\sqrt{\left(-72 a c e+27 a d^2+27 b^2 e-9 b c d+2 c^3\
   e-9 b c d+2 c^3}}-\frac{2 c}{3 a}}}-\frac{\sqrt[3]{\sqrt{\left(-72 a c e+27 a d^2+27 b
   e+27 a d^2+27 b^2 e-9 b c d+2 c^3}}{3 \sqrt[3]{2} a}-\frac{\sqrt[3]{2} \left(12 a e-3 b
   e-9 b c d+2 c^3\right)^2-4 \left(12 a e-3 b d+c^2\right)^3}-72 a c e+27 a d^2+27 b^2 e-
```

In[•]:=
```
Solve[a x^4 + b x^3 + c x^2 + d x + e == 0, x][[1, 1, 2]]
```

Out[•]=

$$-\frac{b}{4a}-\frac{1}{2}\sqrt{\left(\frac{b^2}{4a^2}-\frac{2c}{3a}+\left(2^{1/3}\left(c^2-3bd+12ae\right)\right)\Big/\left(3a\left(2c^3-9bcd+27ad^2+27b^2e-72ace+\sqrt{-4\left(c^2-3bd+12ae\right)^3+\left(2c^3-9bcd+27ad^2+27b^2e-72ace\right)^2}\right)^{1/3}\right)+\frac{1}{3\times 2^{1/3}a}\left(2c^3-9bcd+27ad^2+27b^2e-72ace+\sqrt{-4\left(c^2-3bd+12ae\right)^3+\left(2c^3-9bcd+27ad^2+27b^2e-72ace\right)^2}\right)^{1/3}\right)}-\frac{1}{2}\sqrt{\left(\frac{b^2}{2a^2}-\frac{4c}{3a}-\left(2^{1/3}\left(c^2-3bd+12ae\right)\right)\Big/\left(3a\left(2c^3-9bcd+27ad^2+27b^2e-72ace+\sqrt{-4\left(c^2-3bd+12ae\right)^3+\left(2c^3-9bcd+27ad^2+27b^2e-72ace\right)^2}\right)^{1/3}\right)-\frac{1}{3\times 2^{1/3}a}\left(2c^3-9bcd+27ad^2+27b^2e-72ace+\sqrt{-4\left(c^2-3bd+12ae\right)^3+\left(2c^3-9bcd+27ad^2+27b^2e-72ace\right)^2}\right)^{1/3}-\left(-\frac{b^3}{a^3}+\frac{4bc}{a^2}-\frac{8d}{a}\right)\Big/\left(4\sqrt{\left(\frac{b^2}{4a^2}-\frac{2c}{3a}+\left(2^{1/3}\left(c^2-3bd+12ae\right)\right)\Big/\left(3a\left(2c^3-9bcd+27ad^2+27b^2e-72ace+\sqrt{-4\left(c^2-3bd+12ae\right)^3+\left(2c^3-9bcd+27ad^2+27b^2e-72ace\right)^2}\right)^{1/3}\right)+\frac{1}{3\times 2^{1/3}a}\left(2c^3-9bcd+27ad^2+27b^2e-72ace+\sqrt{-4\left(c^2-3bd+12ae\right)^3+\left(2c^3-9bcd+27ad^2+27b^2e-72ace\right)^2}\right)^{1/3}\right)}\right)}$$

In[•]:=
```
Solve[a x^4 + b x^3 + c x^2 + d x + e == 0, x][[1, 1, 2]] // Simplify
```

Out[•]=

$$-\frac{1}{12\,a}\left(3\,b+\sqrt{3}\,a\sqrt{\left(\frac{1}{a^2}\left(3\,b^2-8\,a\,c+\left(4\times 2^{1/3}\,a\left(c^2-3\,b\,d+12\,a\,e\right)\right)\Big/\left(2\,c^3-9\,b\,c\,d+27\,a\,d^2+27\,b^2\,e-72\,a\,c\,e+\sqrt{-4\left(c^2-3\,b\,d+12\,a\,e\right)^3+\left(2\,c^3-9\,c\left(b\,d+8\,a\,e\right)+27\left(a\,d^2+b^2\,e\right)\right)^2}\right)^{1/3}+2\times 2^{2/3}\,a\left(2\,c^3-9\,b\,c\,d+27\,a\,d^2+27\,b^2\,e-72\,a\,c\,e+\sqrt{-4\left(c^2-3\,b\,d+12\,a\,e\right)^3+\left(2\,c^3-9\,c\left(b\,d+8\,a\,e\right)+27\left(a\,d^2+b^2\,e\right)\right)^2}\right)^{1/3}\right)\right)}+\sqrt{6}\,a\sqrt{\left(-\frac{1}{a^3}\left(-3\,a\,b^2+8\,a^2\,c+\left(2\times 2^{1/3}\,a^2\left(c^2-3\,b\,d+12\,a\,e\right)\right)\Big/\left(2\,c^3-9\,b\,c\,d+27\,a\,d^2+27\,b^2\,e-72\,a\,c\,e+\sqrt{-4\left(c^2-3\,b\,d+12\,a\,e\right)^3+\left(2\,c^3-9\,c\left(b\,d+8\,a\,e\right)+27\left(a\,d^2+b^2\,e\right)\right)^2}\right)^{1/3}+2^{2/3}\,a^2\left(2\,c^3-9\,b\,c\,d+27\,a\,d^2+27\,b^2\,e-72\,a\,c\,e+\sqrt{-4\left(c^2-3\,b\,d+12\,a\,e\right)^3+\left(2\,c^3-9\,c\left(b\,d+8\,a\,e\right)+27\left(a\,d^2+b^2\,e\right)\right)^2}\right)^{1/3}-\left(3\sqrt{3}\left(b^3-4\,a\,b\,c+8\,a^2\,d\right)\right)\Big/\left(\sqrt{\left(\frac{1}{a^2}\left(3\,b^2-8\,a\,c+\left(4\times 2^{1/3}\,a\left(c^2-3\,b\,d+12\,a\,e\right)\right)\Big/\left(2\,c^3-9\,b\,c\,d+27\,a\,d^2+27\,b^2\,e-72\,a\,c\,e+\sqrt{-4\left(c^2-3\,b\,d+12\,a\,e\right)^3+\left(2\,c^3-9\,c\left(b\,d+8\,a\,e\right)+27\left(a\,d^2+b^2\,e\right)\right)^2}\right)^{1/3}+2\times 2^{2/3}\,a\left(2\,c^3-9\,b\,c\,d+27\,a\,d^2+27\,b^2\,e-72\,a\,c\,e+\sqrt{-4\left(c^2-3\,b\,d+12\,a\,e\right)^3+\left(2\,c^3-9\,c\left(b\,d+8\,a\,e\right)+27\left(a\,d^2+b^2\,e\right)\right)^2}\right)^{1/3}\right)\right)}\right)\right)\right)\right)\right)$$

In[•]:=
```
Solve[a x^4 + b x^3 + c x^2 + d x + e == 0, x][[1, 1, 2]] // FullSimplify
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Out[•]=
```
$Aborted
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