

Facitliste

512:

> `dsolve(diff(x(t),t,t)+3*diff(x(t),t)+2*x(t)=exp(t));`

$$x(t) = \frac{1}{6} e^t - e^{(-2t)} _C1 + e^{(-t)} _C2$$

513:

> `dsolve(diff(x(t),t,t)-6*diff(x(t),t)+9*x(t)=t^3);`

$$x(t) = e^{(3t)} _C2 + e^{(3t)} t _C1 + \frac{8}{81} + \frac{2t}{9} + \frac{2t^2}{9} + \frac{t^3}{9}$$

514:

> `dsolve(diff(x(t),t,t)-3*diff(x(t),t)+2*x(t)=2*t^2+3);`

$$x(t) = 5 + 3t + t^2 + e^{(2t)} _C1 + e^t _C2$$

515:

> `dsolve(diff(x(t),t,t)-2*diff(x(t),t)+5*x(t)=cos(t));`

$$x(t) = e^t \sin(2t) _C2 + e^t \cos(2t) _C1 - \frac{1}{10} \sin(t) + \frac{1}{5} \cos(t)$$

517:

> `dsolve(diff(x(t),t,t)+4*diff(x(t),t)+8*x(t)=exp(2*t)*cos(2*t));`

$$x(t) = e^{(-2t)} \sin(2t) _C2 + e^{(-2t)} \cos(2t) _C1 + \frac{1}{32} e^{(2t)} (\sin(2t) + \cos(2t))$$

> `dsolve(diff(x(t),t,t)+4*diff(x(t),t)+8*x(t)=cos(t));`

$$x(t) = e^{(-2t)} \sin(2t) _C2 + e^{(-2t)} \cos(2t) _C1 + \frac{4}{65} \sin(t) + \frac{7}{65} \cos(t)$$

> `dsolve(diff(x(t),t,t)+4*diff(x(t),t)+8*x(t)=2*exp(2*t)*cos(2*t)-3*cos(t));`

$$x(t) = e^{(-2t)} \sin(2t) _C2 + e^{(-2t)} \cos(2t) _C1 + \frac{1}{1040} (65 \sin(2t) + 65 \cos(2t)) e^{(2t)} - \frac{21}{65} \cos(t) - \frac{12}{65} \sin(t)$$

519:

> `dsolve(diff(x(t),t,t)-3*diff(x(t),t)-4*x(t)=-sin(t)+exp(2*t)+1);`

$$x(t) = e^{(4t)} _C2 + e^{(-t)} _C1 - \frac{3}{34} \cos(t) + \frac{5}{34} \sin(t) - \frac{1}{6} e^{(2t)} - \frac{1}{4}$$

586:

> `dsolve(diff(x(t),t,t)+4*diff(x(t),t)+5*x(t)=cos(2*t));`

$$x(t) = e^{(-2t)} \sin(t) _C2 + e^{(-2t)} \cos(t) _C1 + \frac{8}{65} \sin(2t) + \frac{1}{65} \cos(2t)$$

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