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[>
#HW3 Alan Hoc
#ok to post
> y2 := dsolve( {D(D(y))(t) - y(t) = 0, y(0) = 1, D(y)(0) = 0}, numeric); y2(1)
y2 := proc(x_rkf45) ... end proc
[ t = 1., y(t) = 1.54308053257804,  $\frac{d}{dt} y(t) = 1.17520114015441$  ] (1)
```

```
> y3 := dsolve( {D(D(D(y)))(t) - y(t) = 0, y(0) = 1, D(y)(0) = 0, D(D(y))(0) = 0}, numeric);
y3(1)
y3 := proc(x_rkf45) ... end proc
[ t = 1., y(t) = 1.16805828131390,  $\frac{d}{dt} y(t) = 0.508358161937684$ ,  $\frac{d^2}{dt^2} y(t)$ 
= 1.04186532250979 ] (2)
```

> #gets closer to 1

```
> rsolve( {a(n) = a(n - 1)^2}, a(n))
a(0)^{2^n} (3)
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```
> rsolve( {a(n) = 3 a(n - 1) - 2 a(n - 2)}, a(0) = 2, a(1) = 3}, a(n))
2^n + 1 (4)
```

```
> rsolve( {a(n) = 2 a(n - 1) + 2 a(n - 2) - 2 a(n - 3)}, a(0) = 2, a(1) = 2, a(2) = 6}, a(n))
Error, (in genfunc:-rgf_expand) unable to compute coeff (5)
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```
> rsolve( {a(n) = a(n - 4)}, a(0) = 1, a(1) = 0, a(2) = 0, a(3) = 0}, a(n))
 $\frac{(-1)^n}{4} + \frac{1^n}{4} + \frac{(-1)^n}{4} + \frac{1}{4}$  (6)
```

>