Matt Parker's Puzzle #11

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% Matt Parker's Puzzle #11
% https://www.think-maths.co.uk/agepuzzle
% David and Anton's ages combined equals 65.
% David is currently three times as old as Anton was when
% David was half as old as Anton will be when Anton is three times
% as old as David was when David was three times as old as Anton.

% Puzzle for submission: How old is David?

% variables

% minizinc constraint model

include "globals.mzn";
var float :D0;
var float :D1;
var float :D2;
var float :D3;

var float :A0;
var float :A1;
var float :A2;
var float :A3;

%Ages for David and Anton are
%are given for 4 different
%times by
%D0, D1, D2, D3
%A0, A1, A2, A3


constraint D0+A0 = 65;
constraint D0 = 3*A1;
constraint D1 = (0.5)*A2;
constraint A2 = 3*D3;
constraint D3 = 3*A3;

constraint D1-D0 = A1-A0;
constraint D2-D1 = A2-A1;
```

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constraint D3-D2 = A3-A2;

solve satisfy;

output
[
  "David age's: " ++ show(D0)
];
```