20S-MATH61-2 Quiz 6

CHARLES ZHANG

TOTAL POINTS

8 / 10

QUESTION 1

1 Question 1 8 / 10

- **0 pts** Correct
- **4 pts** Incorrect/Incomplete.
- ✓ **- 2 pts** **Correct roots, incorrect coefficients.**
- **2 pts** Incorrect roots.
- **7 pts** Minimum submission score.
- **0 pts** Correct guess of general formula but...

Q6C: $a_{n+2} = 2a_n - a_{n+1}$, $n \geq 0$

$a_0 = -2$, $a_1 = 1$, $a_2 = -4 - 1 = -5$

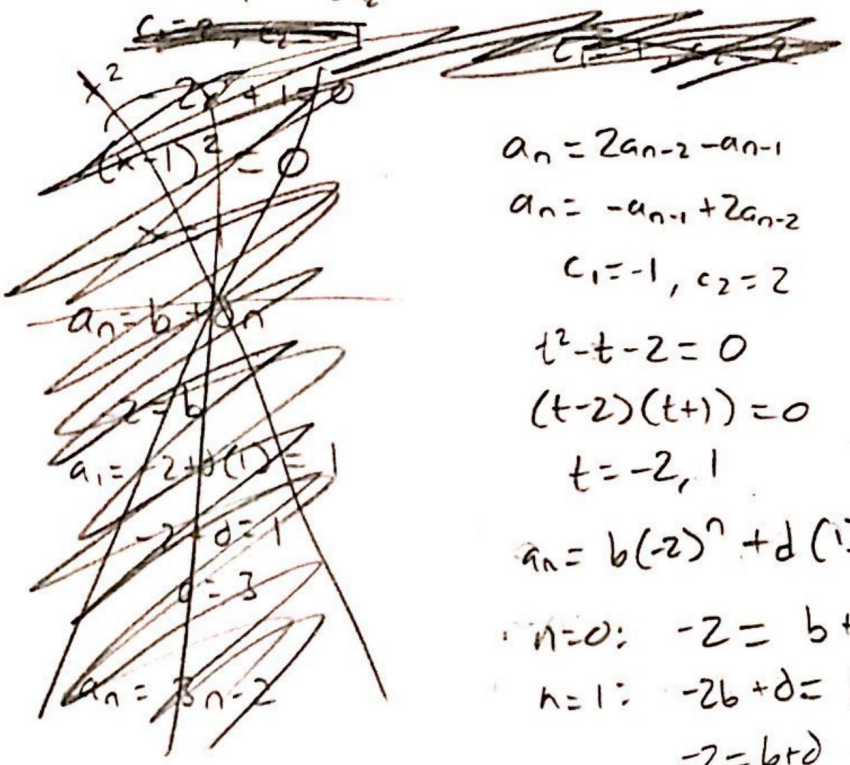
$a_3 = 2 + 5 = 7$

$a_2 = -4 - 1 = -5$ $\quad a_4 = -10 - 7 = -17$

$a_3 = 2 + 5 = 7$

linear homogeneous w/ constant coeff.

↳ $a_n = br_1^n + dr_2^n$



$a_n = 2a_{n-2} - a_{n-1}$

$a_n = -a_{n-1} + 2a_{n-2}$

$c_1 = -1$, $c_2 = 2$

$t^2 - t - 2 = 0$

$(t-2)(t+1) = 0$

$t = -2, 1$

$a_n = b(-2)^n + d(1)^n = b(-2)^n + d$

$n=0$: $-2 = b + d$

$n=1$: $-2b + d = 1$

$-2 = b + d$

$-1 = -2b + d$

$-3 = -3b$ ←

$b = -1$

$d = -3$

$a_n = -(-2)^n + 3$

* Added after quiz

I know this should be $-3 = 3b$, so $b = -1$, $d = -1$, $a_n = -(-2)^n - 1$, im dumb

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