Rich Mathematical Task – Grade *7 – Summer Passes*
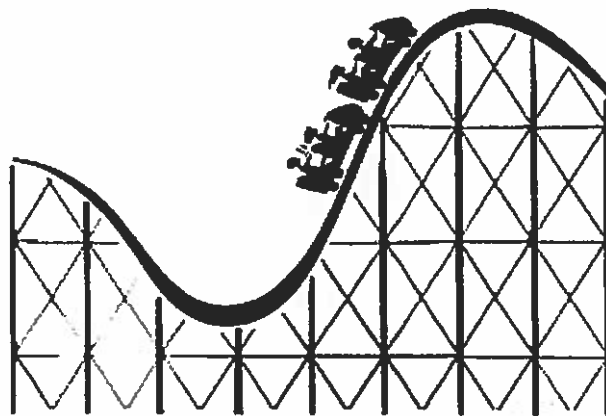
Student Version of Task Description

Michael, Susie, and Karl plan to purchase summer passes to a local amusement park. They decide to work summer jobs to earn the money for the summer passes.

- Michael will babysit his little brother every day. He will earn $10 a day for babysitting.

- Susie's sister has a summer lawn care business. Susie will help her sister pull weeds out of the flower beds every day. Her sister will pay her $50 upfront and then a dollar each day.

- Karl has already saved $35 for his summer pass. His mom agrees to give him one dollar for every day that he does his chores. Karl does his chores every day.

If a summer pass to the amusement park costs $86, who will be the first one to have enough money to buy the pass? How long will it be before they can all go together? Explain your reasoning and give evidence of your position.
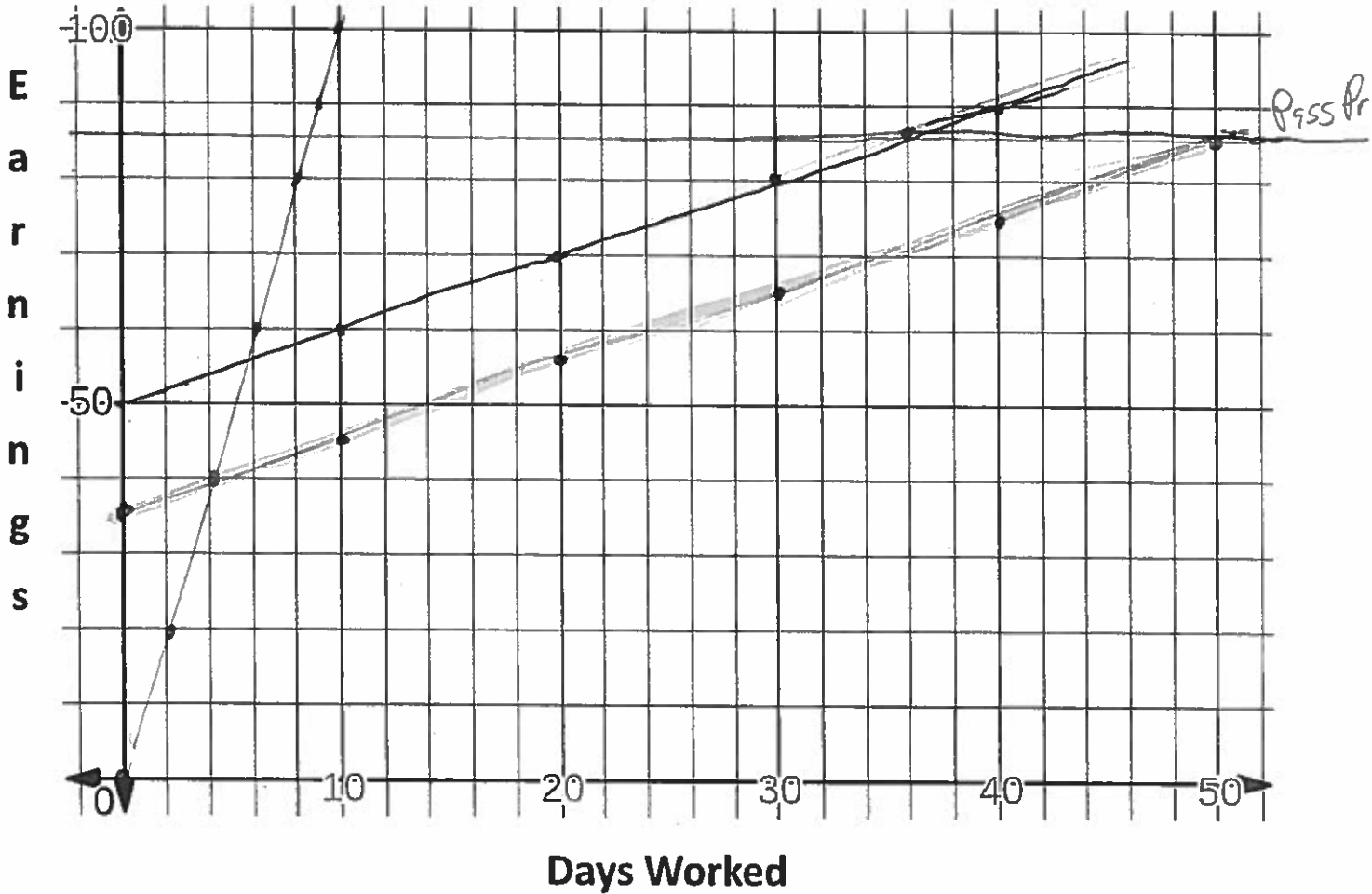
Michael
Susie
Karl

Rich Mathematical Task – Grade 7 – *Summer Passes*

Possible Graphic Organizers

Earnings

Days Worked

- Michael will be the first to have enough money to buy a pas
- It will be 51 days before they canallgo together

Rich Mathematical Task – Grade *7* – *Summer Passes*

Michael

DAY	Earnings

Karl

DAY	Earnings

Susie

DAY	Earnings

Park Pass: 86

Michael: 0   Susie:

Days	Money
0	0
2	20
4	40
6	60
8	80
9	90

Days	Money
0	50
1	51
2	52
10	60
15	65
20	70
25	75
30	80
35	85
36	86

$y = x(10)$

Karl

Days	Money
0	35
1	36
2	37
10	45
15	50
20	55
25	60
30	65
35	70
40	75
45	80
50	85
51	86

$y = x + 50$

$y = x + 35$

Though Michael starts with zero, he earns the most money per day of the group. He has enough money on day nine, while Susie has enough on day 36, & Karl on day 51. Though Susie & Karl start with more money, their line is not as steep as Michael, therefore, they finish later.

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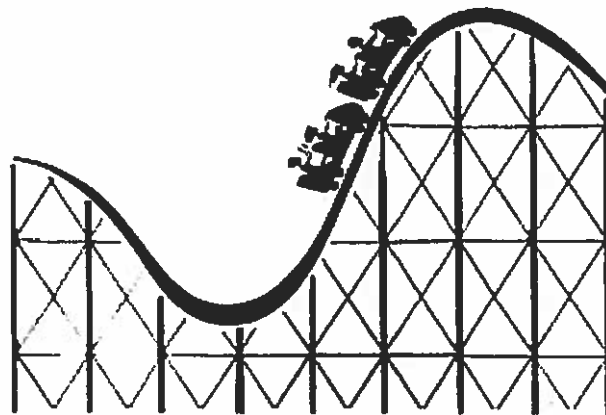- Michael will babysit his little brother every day. He will earn $10 a day for babysitting.

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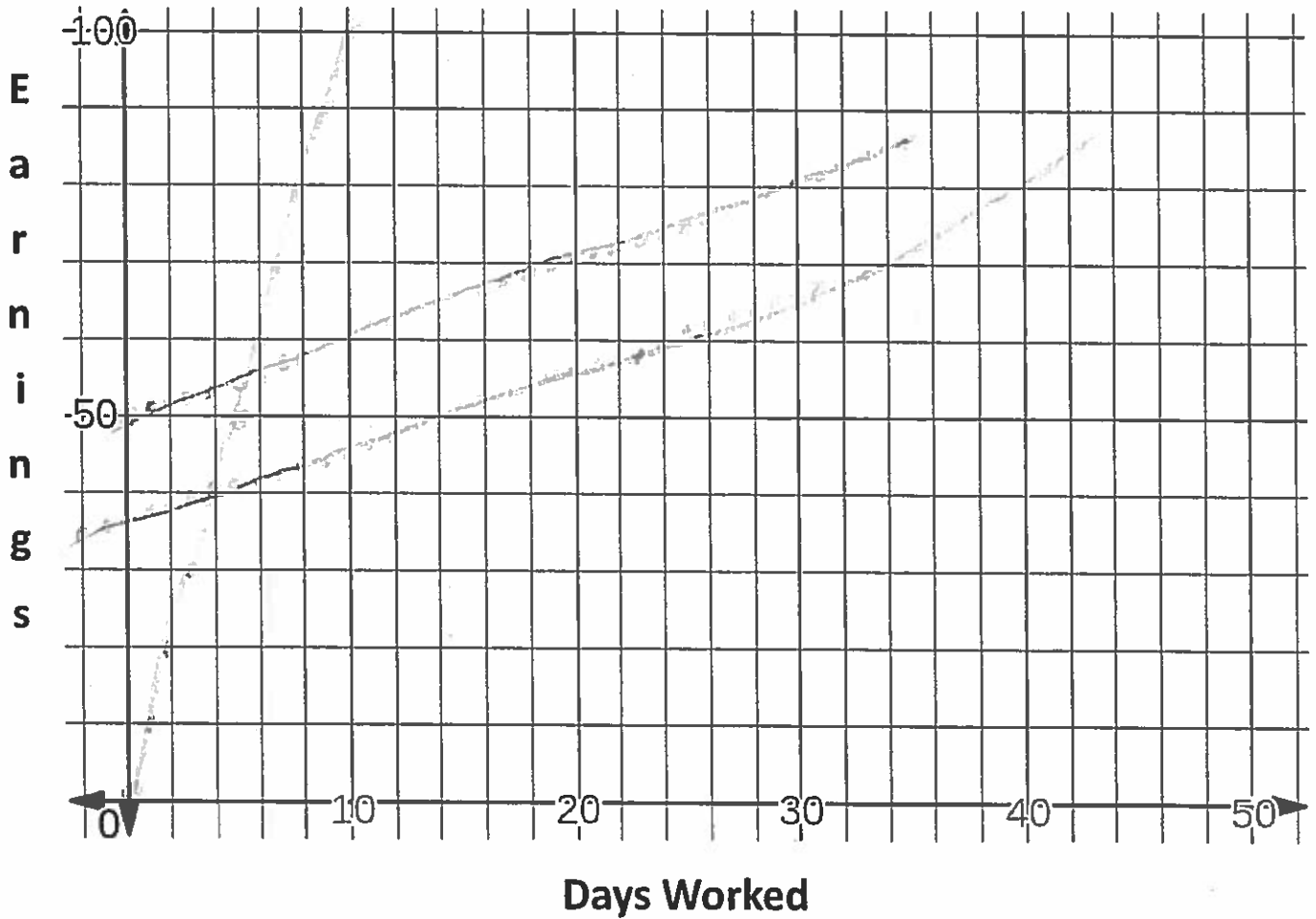
If a summer pass to the amusement park costs $86, who will be the first one to have enough money to buy the pass? How long will it be before they can all go together? Explain your reasoning and give evidence of your position.

Rich Mathematical Task – Grade *7* – *Summer Passes*

Possible Graphic Organizers

michael ▨
susie ▨
karl ▮

Rich Mathematical Task – Grade *7 – Summer Passes*

Michael

DAY	Earnings

Susie

DAY	Earnings

Karl

DAY	Earnings

michael: $10 per day

susie: starts with 50 get a dollar every day

Karl: starts with 35 gets a dollar every da

it takes michael nine days to get enough money. It takes susie 36 days to get the money she needs, It takes Karl 51 days to get the money he needs

$10 \times 9 = 90$

$36 \times 1 + 50 = 86$

$51 \times 1 + 35 = 86$

How I got these answers is I added 10 each day I counted until I went passed 86 fo michael. For susie I added one dollar everyday I hit 86. For Karl I added a dollar till I g 86

Micheal will earn his $86 in 9 days. He just ea
$10 a day and he needs $86. $10 in 8 days i
$80, but that isn't enough so he needs to work 9
days.

day	$
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90

} +10
} +10
+10
+10
+10
+10
+10
+10

He doesn't have enough,
so he works another day

90
80
70
60
50
40
30
20
10

0 1 2 3 4 5 6 7 8 9

Susie takes 36 days to get $86. She starts out i
$50, but then she has to get 36 dollars more. S
only earns a dollar a day, so for her to get $
she has to work 36 days. Then, 36+50=86.

day	$
0	50
1	51
2	52
4	54
6	56
8	58
10	60
14	64
18	68
24	74
28	78
32	82
36	86

She starts out with $50 then add
a dollar every day, so over 36 day
she will have $86.

Day 36←
She has
$86

Karl will have $86 after 51 days of his chores. He starts out with $35 dollars, but he needs $86, so you subtract 86-35 which would equal 51. He only earns a dollar a day, so it would take him 51 days.

Days	$
0	35
5	40
10	45
15	50
20	55
25	60
30	65
40	75
45	80
50	85
51	86

←After 51 days he has 86 dollars

Based on the information above, Micheal will have enough money first, and it will take 51 days before they can all go, because thats how long it takes Karl to make $86 dollars. Karl will make the money the slowest, so Micheal and Su would have to wait for him.

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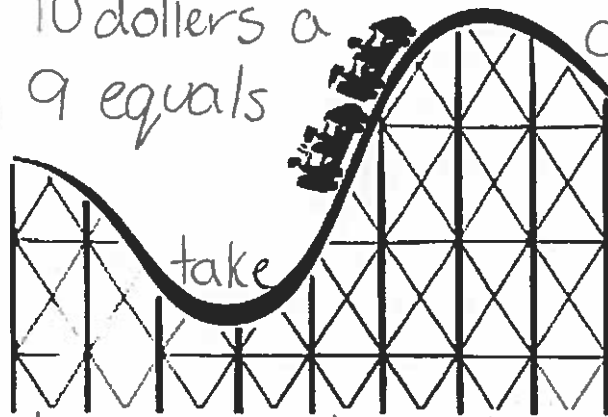
- Karl has already saved $35 for his summer pass. His mom agrees to give him one dollar for every day that he does his chores. Karl does his chores every day.

If a summer pass to the amusement park costs $86, who will be the first one to have enough money to buy the pass? How long will it be before they can all go together? Explain your reasoning and give evidence of your position.

Michael, because he only has to work 9 days sinse he gets paid 10 dollers a day, and 10 mutiplied by 9 equals day, and 10 $10 and that is enough money for a Pass. It will take 51 days before they can all go together, becau Karl is the last person to get his pass, and Starting from today it would take him 51 day: to get it, and when he gets his pass they all car finally go to the park together.

$86

Michael = 9 days $\quad \times \dfrac{10}{9}$ $\quad 86 < 90$ ✓

$\dfrac{90}{}$

Susie = 36 days $\quad \begin{array}{r} 86 \\ -50 \\ \hline 36 \end{array}$

Karl = 51 days $\quad \begin{array}{r} 86 \\ 35 \\ \hline 51 \end{array}$

Other way to get the answer

Days	1	2	3	4	5	6	7	8	⑨
Michael	$10	$20	$30	$40	$50	$60	$70	$80	$90

+10 +10 +10 +10 +10 +10 +10 +10

started with ↓

Days	0	1	2	3			33	34	35	㊱
Susie	$50	$51	$52	$53	↓	↓	$83	$84	$85	$86

+1 +1 +1 +1 ····· 30 days later = +30 $\quad$ +1 +1 +1

started with ↓

Days	0	1	2	3			45	46	47	48	49	50	⑤
Karl	$35	$36	$37	$38	↓	↓	$80	$81	$82	$83	$84	$85	8

+1 +1 +1 $\quad$ 42 days later $\quad$ +1 +1 +1 +1 +1 +1

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If a summer pass to the amusement park costs $86, who will be the first one to have enough money to buy the pass? How long will it be before they can all go together? Explain your reasoning and give evidence of your position.

Michael will be the first because 10 dollars a day for 9 days is quicker than 50 or 35 dollars up front and only earning 1 dollar a day.
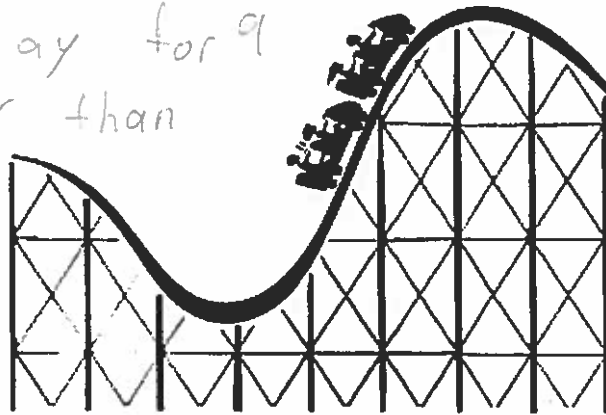
$$86 \qquad \begin{array}{r} 86 \\ -51 \\ \hline 35 \end{array} \qquad \begin{array}{r} 86 \\ -35 \\ \hline 51 \end{array}$$

$$\begin{array}{r} .86 \\ -10 \\ \hline 8.6 \end{array}$$

✓ $= y = 10x$ $86 = 1y + 35$ $86 = \dfrac{10x}{10}$ $86 = 1x + 50$
$y = 1x + 50$ $-35 \qquad -35$ $\qquad 10 \qquad 10$ -50
$\therefore y = 1x + 35$ $51 = 1x$ $x = 8.6$ $\dfrac{36}{1} = \dfrac{1x}{1}$
$\qquad \boxed{x = 51}$ $\boxed{x = 9}$ $\boxed{x = 36}$

$$\begin{array}{r} 35 \\ +50 \\ \hline 85 \end{array}$$

michale = 9 days   1st
Jusie = 36 days   2nd
Karl = 51 days   3rd

x	y
0	0
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9days 9	90

x	y
0	50
1	51
5	55
10	60
15	65
20	70
25	75
30	80
35	85
36	86

x	y
0	35
10	45
20	55
30	65
40	75
50	85
51	86

All would be able to go on the 51st day

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• Susie's sister has a summer lawn care business. Susie will help her sister pull weeds out of the flower beds every day. Her sister will pay her $50 upfront and then a dollar each day. 36 days

✗ Karl has already saved $35 for his summer pass. His mom agrees to give him one dollar for every day that he does his chores. Karl does his chores every day. 51 day

If a summer pass to the amusement park costs $86, who will be the first one to have enough money to buy the pass? How long will it be before they can all go together? Explain your reasoning and give evidence of your position.
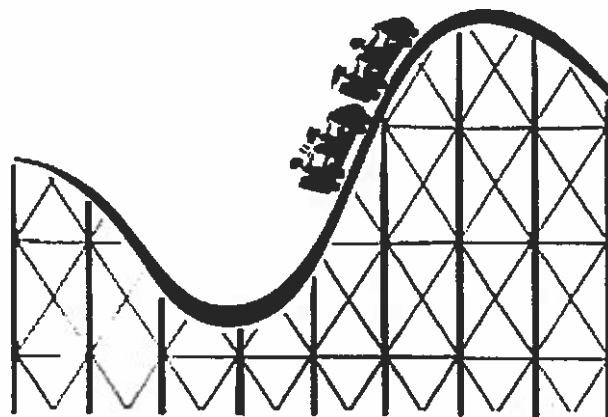
Michael: is going to be the fastest
so his line is really steep which mea
he will have the money the fastest and
the most in the time frame.
Susie: has more money then karl because
she started with more money as is
if they started with the same amount
they would be equal they still are
getting paid the same its just that susie
started with more so she started higher on
the chart.

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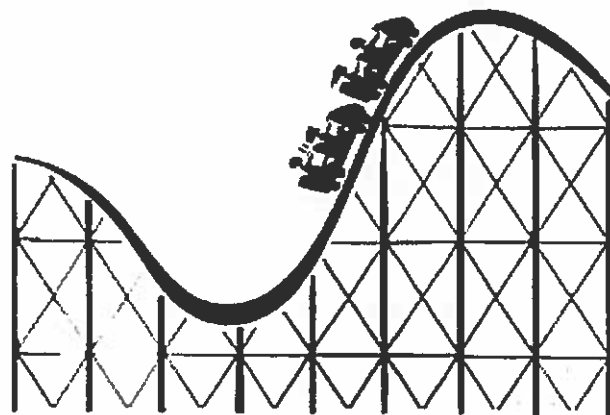
$51 \text{ days} = 35 (1 \times 35) = 86$ | $36 \text{ days} = 34 (30 \times 1)$

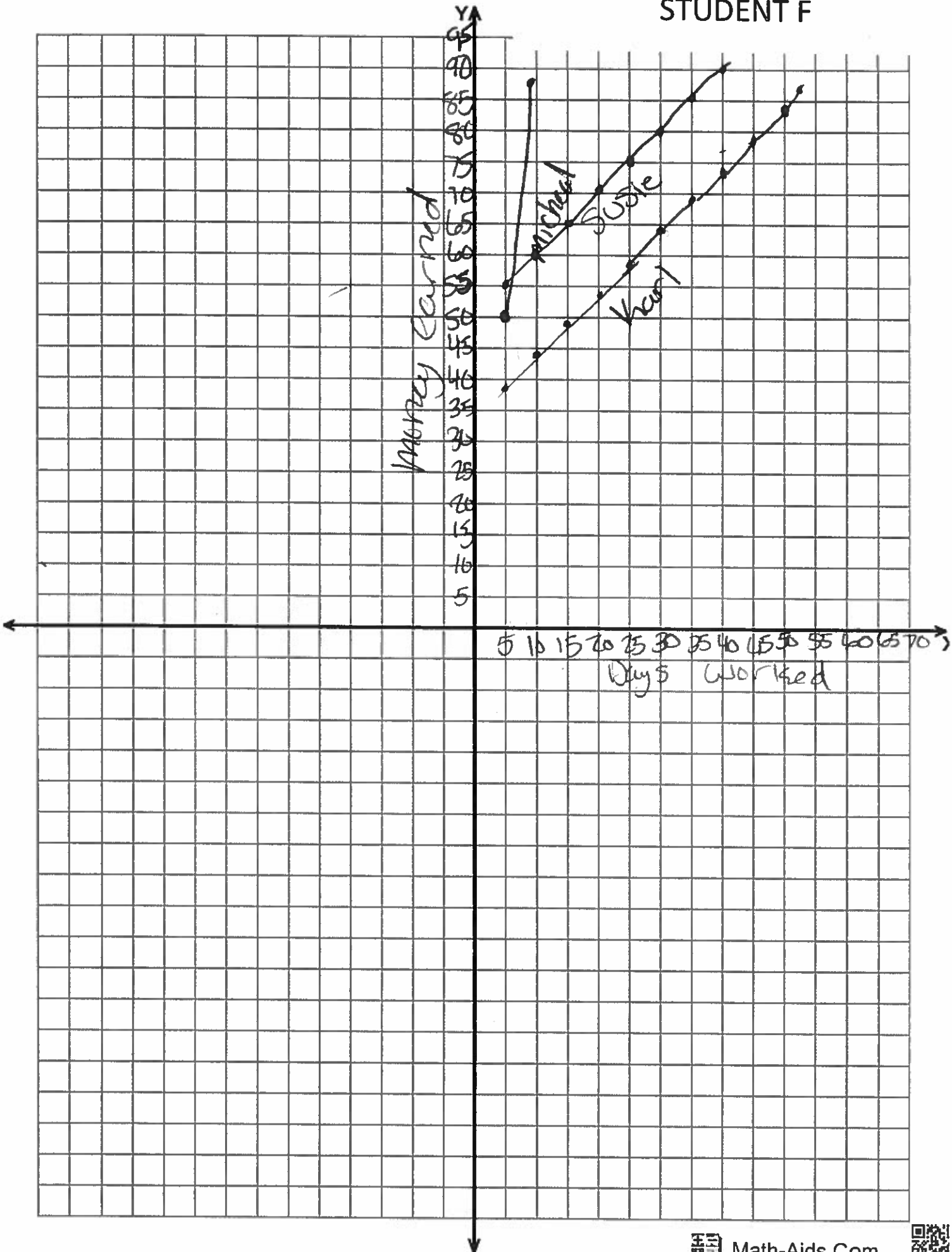$\frac{86}{-\frac{1}{35}}$

$\frac{86}{-50}$
$\frac{}{36}$

If a summer pass to the amusement park costs $86, who will be the first one to have enough money to buy the pass? How long will it be before they can all go together? Explain your reasoning and give evidence of your position.

$\begin{array}{r} 8.6 \\ 10\overline{)86.0} \\ \underline{-80} \\ 60 \\ \underline{-60} \\ 0 \end{array}$

$M = 8.6 \text{ or } 9 \text{ days}$
$S = 36 \text{ days}$
$C =$

STUDENT F

STUDENT F

Susie

x	y
0	50
1	51
2	52
3	53
4	54
5	55
6	56
7	57
8	58
9	59
10	60

0

1	35
2	36
4	38
6	40
8	
10	
12	
14	
16	

1	35
2	36
3	37
4	38
5	39
6	40
7	41
8	42
9	43
10	44
11	45
12	46
13	47
14	48
15	49
16	50
17	51
18	52
19	83
20	54
21	55
22	56
23	57
24	58
25	59
26	100

27	61
28	62
29	63
30	64
31	65
32	66
33	67
34	68
35	69
36	70
37	71
38	72
39	73
40	74
41	75
42	76
43	77
44	78
45	79
46	80
47	81
48	82
49	83
50	84
51	85
52	86

11	61
12	62
13	63
14	64
15	65
16	66
17	67
18	68
19	69
20	70
21	71
22	72
23	73
24	74
25	75
26	76
27	77
28	78
29	79
30	80
31	81
32	82
33	83