

Performance Task: 8.4C
Rates of Change and Intercepts: Music Downloads

Adriana got a new phone. As part of a special promotion, she received a few music downloads for free on her online music store account. Adriana’s parents allowed her to get a certain number of downloads each month. Adriana created a table to represent the total number of music downloads she made during the first year having her phone. She recorded this data after different numbers of months of using her account.

Number of months, x	2	4	7	9	12
Number of downloads, y	109	193	319	403	529

If Adriana used all the music downloads every month that her parents allowed, how many downloads was she able to have each month? How many did she get for free in the beginning?

Procedural	0	1	2
Conceptual	0	1	2
Communication	0	1	2

Total points: _____



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Adriana got a new phone. Adriana’s parents allow her to get a certain number of music downloads each month. Adriana created a table to represent the total number of music downloads she can have on her phone after certain months of service given that she downloads all the music her parents will allow.

Number of months, x	2	4	7	10	12
Number of downloads, y	80	160	280	400	480

If Adriana used all the music downloads every month that her parents allowed, how many downloads was she able to have each month?

Procedural	0	1	2	
Conceptual	0	1	2	
Communication	0	1	2	

Total points: _____



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Number of months, x	2	4	7	9	15
Number of downloads, y	109	193	319	403	655

If Adriana used all the music downloads every month that her parents allowed, how many downloads was she able to have each month? How many did she get for free in the beginning?

If each music download cost an average of \$1.99, how much would Adriana have spent on downloads in one year?

Procedural	0	1	2
Conceptual	0	1	2
Communication	0	1	2

Total points: _____



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Number of months, x	2	4	7	9	12
Number of downloads, y	109	193	319	403	529

1. Find the differences between each of the x -values and each of the y -values in the table.
2. Use the differences to write ratios of $\frac{\text{change in } y}{\text{change in } x}$ for each pair of differences you found in the table. Reduce each ratio to lowest terms.
3. What is the common ratio, or rate of change, of differences found from the table?
4. What is the number of music downloads Adriana was allowed each month?
5. Use the rate of change to work backwards from 2 months to 0 months to find the number of downloads Adrianna had at 0 months.
6. How many music downloads did Adriana get for free in the beginning?

