

6th Grade Mathematics Inquiry

What's the best way to buy that Playstation?

CCSS-M Standard Connections	CCSS-M GRADE 6 EXPRESSIONS AND EQUATIONS: Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
Staging the Question	Research the price of the latest Playstation video console system and estimate what the next version will cost. Assuming you can save up to \$35/month, how long will it take you to save up for it? If the system were bought with a parent's credit card, predict/guess what the system will cost given that the minimum payment you have to make each month is \$35.

Supporting Question 1	Supporting Question 2	Supporting Question 3	
Understand	Understand	Assess	
What would be the credit account balance after one month?	How could the credit model become more sophisticated?	How do factors such as interest rate, or payment amount affect the time to balance zero?	
Formative Performance Task 1	Formative Performance Task 2	Formative Performance Task 3	Formative Performance Task 4
Break the problem into steps and show calculations for figuring out the account balance for the credit card after the first month.	Translate the original calculations to a spreadsheet where each column represents a step in the calculation. Use the drag/copy feature to repeat the process for additional months to determine how long it would take to pay off the Playstation.	Modify the model to allow payments to happen on a different day of the month or with a different interest rate. Include a graphical representation of months versus balance.	Replace hard coded values with values linked to a separate cell to test different scenarios by changing that value.
Featured Sources	Featured Sources	Featured Sources	Featured Sources
Source A: How Is Credit Card Interest Calculated? Article	Source A: How Is Credit Card Interest Calculated? Article	Source A: How Is Credit Card Interest Calculated? Article	Source A: How Is Credit Card Interest Calculated? Article

Summative Performance	ARGUMENT What's the best way to buy that Playstation? Construct and present an argument (e.g., infographic, essay) that addresses the compelling question using specific claims supported with data
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Task	scenarios from the spreadsheet model.
	EXTENSION/ACT Develop a “credit-wise” proposal for purchasing the Playstation.

Summative Performance Task

At this point in the inquiry, students should be expected to demonstrate the breadth of their understandings and abilities to use evidence from multiple sources and models to support their distinct claims. In this task, students construct an evidence-based argument responding to the compelling question “What’s the best way to buy that Playstation?” It is important to note that students’ arguments could take a variety of forms, including an outline, infographic, or essay.

Students’ arguments likely will vary, but could include any of the following

- The best way to buy the playstation would be to save up for it. Otherwise you are paying over \$250 extra for it.
- I would have to save for two years in order to buy the paystation. The extra \$250 is worth being able to get it right away.

Below is an example of what a students’s spreadsheet model might look like. The columns are the balance at the start of the billing cycle, the daily interest rate, monthly/billing cycle interest, average daily balance, remaining balance (initial balance – payment + interest), and the total amount paid to date.

credit_card_adv

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PivotTable Recommended PivotTables Table Pictures Shapes SmartArt Screenshot Recommended Charts Sparklines Slicer Hyperlink New Comment Text Box Header & Footer WordArt Object Equation Symbol

A1 fx Balance at Start of Month

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Balance at Start of Month	Daily Interest	Monthly Interest	Avg Balance	Remaining Balance	Total Paid		Interest Rate	0.25									
2	800.00	0.00068	15.71918	765.00	780.72	35		Payment	35									
3	780.72	0.00068	15.32300	745.72	761.04	70		Paid on Day	1									
4	761.04	0.00068	14.91867	726.04	740.96	105												
5	740.96	0.00068	14.50604	705.96	720.47	140												
6	720.47	0.00068	14.08494	685.47	699.55	175												
7	699.55	0.00068	13.65517	664.55	678.21	210												
8	678.21	0.00068	13.21658	643.21	656.42	245												
9	656.42	0.00068	12.76898	621.42	634.19	280												
10	634.19	0.00068	12.31218	599.19	611.50	315												
11	611.50	0.00068	11.84599	576.50	588.35	350												
12	588.35	0.00068	11.37022	553.35	564.72	385												
13	564.72	0.00068	10.88468	529.72	540.61	420												
14	540.61	0.00068	10.38916	505.61	515.99	455												
15	515.99	0.00068	9.88345	480.99	490.88	490												
16	490.88	0.00068	9.36736	455.88	465.25	525												
17	465.25	0.00068	8.84066	430.25	439.09	560												
18	439.09	0.00068	8.30314	404.09	412.39	595												
19	412.39	0.00068	7.75458	377.39	385.14	630												
20	385.14	0.00068	7.19474	350.14	357.34	665												
21	357.34	0.00068	6.62340	322.34	328.96	700												
22	328.96	0.00068	6.04032	293.96	300.00	735												
23	300.00	0.00068	5.44526	265.00	270.45	770												
24	270.45	0.00068	4.83797	235.45	240.29	805												
25	240.29	0.00068	4.21820	205.29	209.50	840												
26	209.50	0.00068	3.58570	174.50	178.09	875												
27	178.09	0.00068	2.94020	143.09	146.03	910												
28	146.03	0.00068	2.28143	111.03	113.31	945												
29	113.31	0.00068	1.60913	78.31	79.92	980												
30	79.92	0.00068	0.92302	44.92	45.84	1015												
31	45.84	0.00068	0.22281	10.84	11.07	1050												
32	11.07	0.00068	-0.49179	-23.93	-24.43	1085												
33	-24.43	0.00068	-1.22107	-59.43	-60.65	1120												
34	-60.65	0.00068	-1.96534	-95.65	-97.61	1155												
35	-97.61	0.00068	-2.72491	-132.61	-135.34	1190												
36	-135.34	0.00068	-3.50007	-170.34	-173.84	1225												
37	-173.84	0.00068	-4.29117	-208.84	-213.13	1260												
38	-213.13	0.00068	-5.09853	-248.13	-253.23	1295												
39	-253.23	0.00068	-5.92247	-288.23	-294.15	1330												

Balance at Start of Month

Ready