**Charity Donations Homework**

**![C:\Documents and Settings\kkelly3\Local Settings\Temporary Internet Files\Content.IE5\H6S1H2JZ\MC900157197[1].wmf]()**

Mari’s wealthy Great-aunt Sue wants to donate money to Mari’s school for new computers. She suggests three possible pans for her donations.

**Plan 1:** Great-aunt Sue’s first plan is give money in the following way: 1, 2, 4, 8, . . . . She will continue the pattern in this table until day 12. Complete the table to show how much money the school would receive each day.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| **Donation** | $1 | $2 | $4 | $8 |  |  |  |  |  |  |  |  |

**Plan 2:** Great-aunt Sue’s second plan is to give funds in the following way: 1, 3, 9, 27, . . . . She will continue the pattern in this table until day 10. Complete the table to show how much money the school would receive each day.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Donation** | $1 | $3 | $9 | $27 |  |  |  |  |  |  |

**Plan 3:** Great-aunt Sue’s third plan is to give money in the following way: 1, 4, 16, 64, . . . She will continue the pattern in this table until day 7. Complete the table to show how much money the school would receive each day.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **Donation** | $1 | $4 | $16 | $64 |  |  |  |

Graph each plan on the same graph to the right.

1. How much does each plan give the school on day 6?
2. What is the common ratio (growth rate) for each plan?
	1. Plan 1 \_\_\_\_\_\_\_\_\_\_
	2. Plan 2 \_\_\_\_\_\_\_\_\_\_
	3. Plan 3 \_\_\_\_\_\_\_\_\_\_
3. Which plan should the school choose? Why?
4. Which plan will give the school the **greatest total** amount of money?

![C:\Documents and Settings\kkelly3\Local Settings\Temporary Internet Files\Content.IE5\TSS18ZCG\MC900199087[1].wmf]()Jason is planning to swim in a charity swim-a-thon. Several relatives have agreed to sponsor him in this charity event. Each of their donations is explained below.

**Grandfather:** I will give you $1 if you swim 1 lap, $3 if you swim 2 laps, $5 if you swim 3 laps, $7 if you swim 4 laps, and so on.

**Father:** I will give you $1 if you swim 1 lap, $3 if you swim 2 laps, $9 if you swim 3 lops, $27 if you swim 4 laps, and so on.

**Aunt June:** I will give you $2 if you swim 1 lap, $3.50 if you swim 2 laps, $5 if you swim 3 laps, $6.50 if you swim 4 laps, and so on.

**Uncle Bob:** I will give you $1 if you swim 1 lap, $2 if you swim 2 laps, $4 if you swim 3 laps, $8 if you swim 4 laps, and so on.

1. Decide whether each donation sequence is exponential, linear, or neither.
	1. Grandfather’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Father’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Aunt June’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Uncle Bob’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Complete the table for each sequence below.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **# of Laps** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Donation** | $1 | $3 | $5 | $7 |  |  |  |  |  |  |

Grandfather’s

 Plan

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **# of Laps** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Donation** | $1 | $3 | $9 | $27 |  |  |  |  |  |  |

 Father’s

 Plan

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **# of Laps** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Donation** | $2 | $3.50 | $5 | $6.50 |  |  |  |  |  |  |

Aunt June’s

 Plan

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **# of Laps** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Donation** | $1 | $2 | $4 | $8 |  |  |  |  |  |  |

Uncle Bob’s

 Plan

1. Graph each table on the graph below. Label each line or curve. Title the graph and label the axes.



1. Use either the table or graph to determine the **total money** Jason will raise for each plan if he swims 10 laps.
	1. Grandfather’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Father’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Aunt June’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Uncle Bob’s Plan \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Adapted from *Growing,* *Growing, Growing, Exponential Relationships*, Connected Mathematics 2, Pearson, 2009.