

# Unit 9 Day 3 HOMEWORK: Charity Donations

Dion's wealthy Great-aunt Sue wants to donate money to Dion's school for new computers. She suggests three possible plans 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 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	2	4	8						

Total: \_\_\_\_\_

**Plan 2:** Great-aunt Sue's second plan is to give funds in the following way: A geometric sequence with a common ratio of 3. The first term will be \$1 and 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										

Total: \_\_\_\_\_

**Plan 3:** Great-aunt Sue's third plan is to give money in the following way: An arithmetic sequence with a common difference of 50. The first term will be \$35 and 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	35	85								

Total: \_\_\_\_\_

1. Graph each plan on the same graph to the right.

2. Write a recursive equation for each pattern:

a. Plan 1  $a_n = 2 \cdot a_{n-1}$

b. Plan 2 \_\_\_\_\_

c. Plan 3 \_\_\_\_\_

2. On Day 3, which plan seems to be the best?

3. Which plan's money grows the FASTEST from each day to the next?

4. Which plan will give the school the greatest TOTAL amount of money? How much MORE money will this plan generate than the second best plan?

