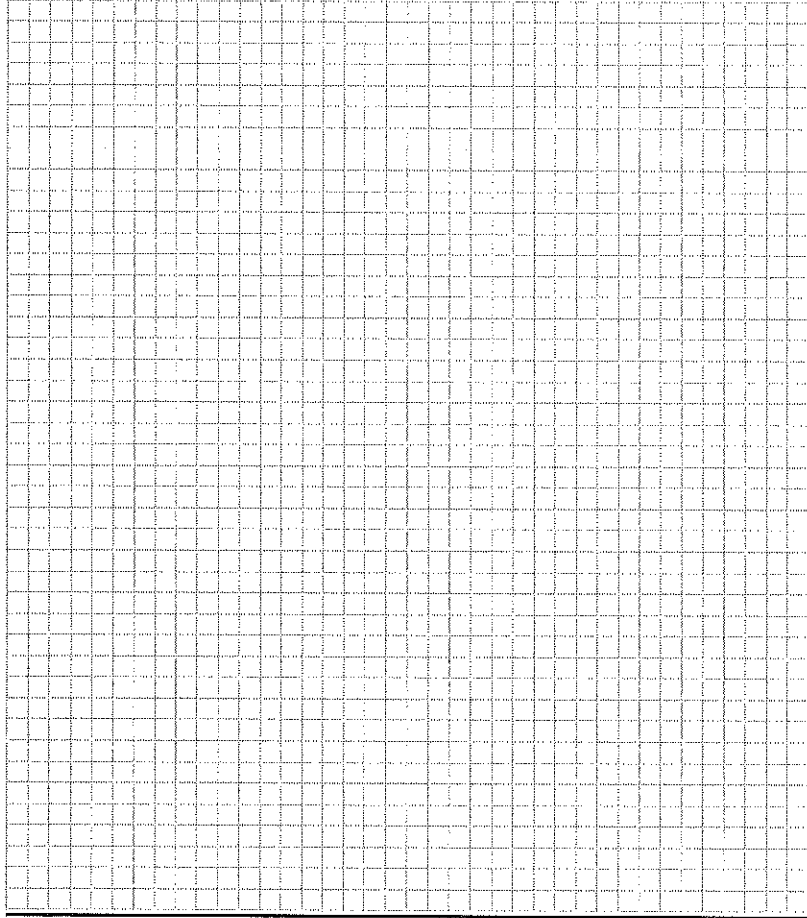




**The Birthday Gift Problem**



1. How much money will each twin receive on their 15th birthday?

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2. Are the policies fair to Mary and Jane? If not, who got a better deal?

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3. Could there be future problems? Explain.

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4. Write the equation for each gifting policy. (Make sure to tell what each variable stands for).

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5. Will Mary and Jane ever receive the same (or close to the same) amount on their birthdays?

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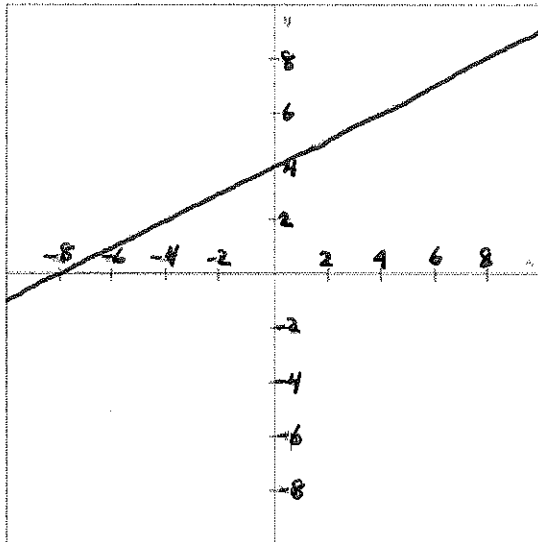
# COLLABORATIVE ACTIVITY

Name of Assessment Task: Card Match    Card Set 1 : A-J

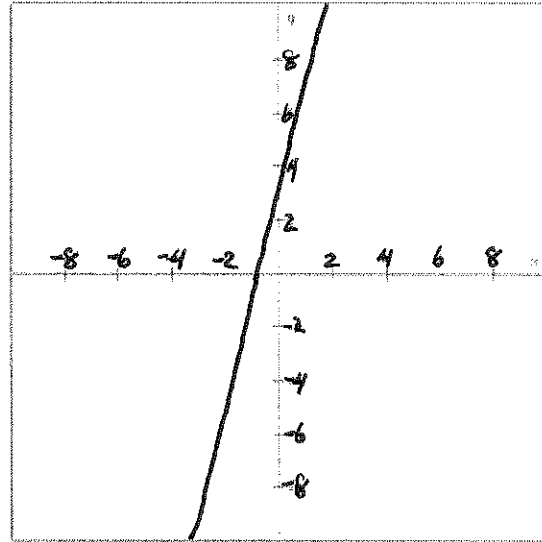
Situation A	Situation B
To hire a taxi, you pay \$4 to get in the car, and \$3 per mile.	You have four dollars in your piggy bank, which triples every year.
Situation C	Situation D
Your parents pay you four dollars a week for allowance, plus 50¢ for each chore that you do.	You are four miles from your date's house. You walk half the distance there. Then you walk half of the remaining distance. Then you walk half of the remaining-remaining distance...you do this forever. Technically, you never get there.
Situation E	Situation F
Your wonderful math teacher gives you three M&M's at the beginning of class, and four additional M&M's for each correct answer on your homework.	A population of cockroaches in a school's kitchen (not yours, of course) starts with just three cockroaches. It quadruples each week.
Situation G	Situation H
It takes you 30 minutes to set up the "Sunglasses, etc." kiosk in the middle of the mall, and then you work there 4 hours per day.	You have half a gallon of water in the kiddie pool, and as you fill it, the volume quadruples each hour.
Situation I	Situation J
You have \$5 that you put into an account, and you deposit \$2 every Friday.	You have \$5 that you put into an account that doubles each year

$f(x) = 3x + 4$	$q(x) = 4 \cdot 3^x$
$h(x) = \left(\frac{1}{2}\right)x + 4$	$n(x) = 4\left(\frac{1}{2}\right)^x$
$k(x) = 4x + 3$	$r(x) = 3 \cdot 4^x$
$m(x) = 4x + \frac{1}{2}$	$w(x) = \left(\frac{1}{2}\right)4^x$

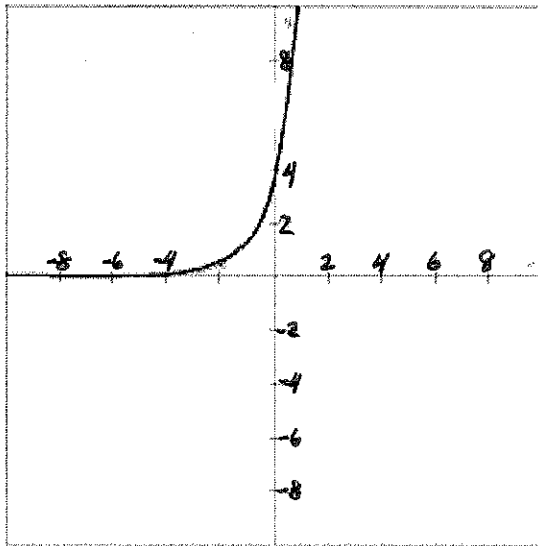
Graph 5



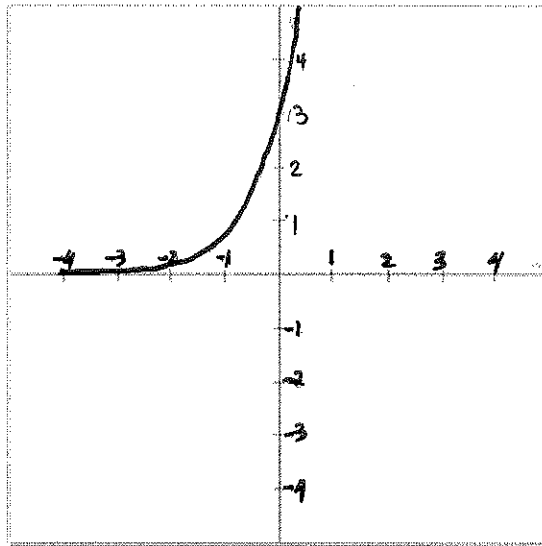
Graph 8

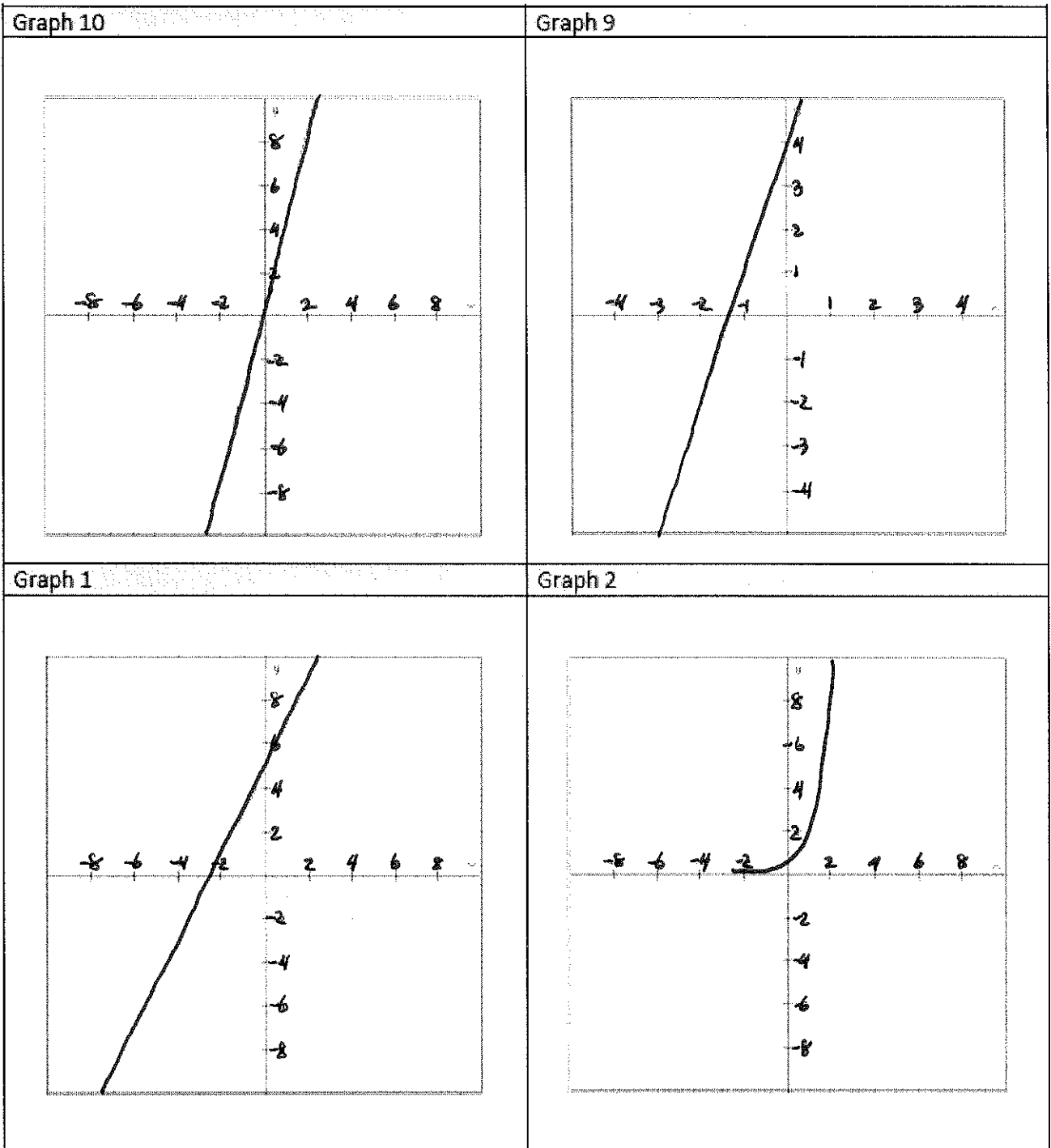


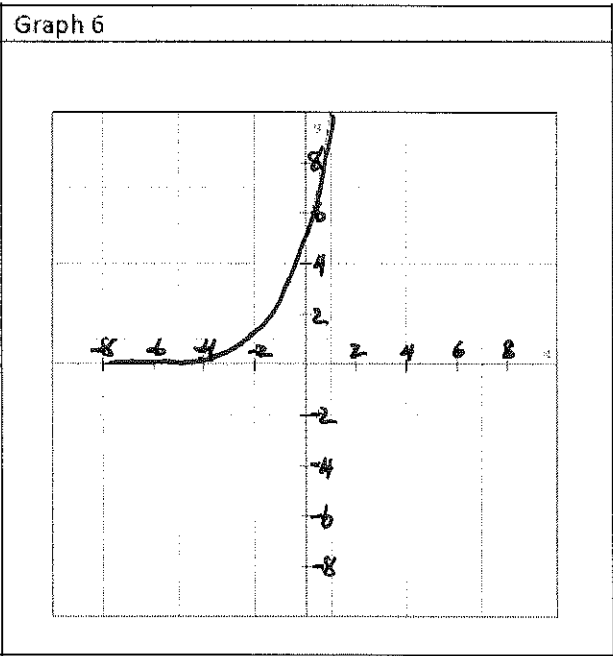
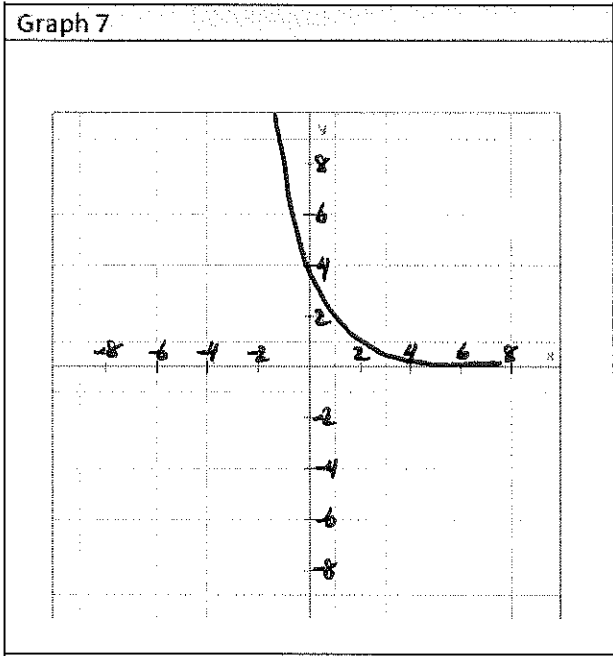
Graph 3



Graph 4







Situation	Equation	Graph
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		



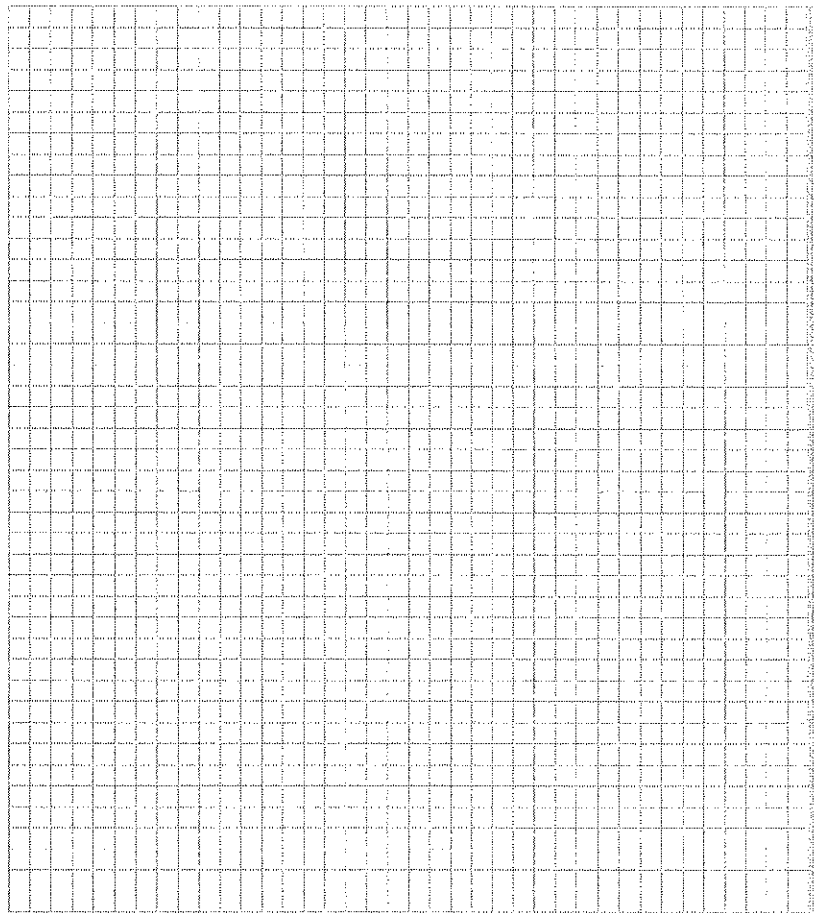
## The Turtle Problem

Veterans Island and The Isle of Northside both have an indigenous population of endangered turtles. In 2012, both islands had an initial population of 200 endangered turtles. The repopulation project initiated by scientists Brown & Peavy looks quite promising. At Veterans, the turtle population increases by 500 turtles per year, while at Northside, the population of turtles doubles each year.

	At Veterans...	At Northside...
Starting Population	200 turtles in 2012	200 turtles in 2012
Rate of Turtle Growth per Year. The population...	increases 500 per year	doubles each year

Graph both on the same axes, below. Take care to label your graph, show the incremental units of measure that you used, and round as appropriate for your population numbers. Indicate which graph is which.

Calendar Year	Year	Veterans Island	Isle of Northside
2012	0	200	200
2013	1		
2014	2		
2015	3		



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1. What will the population of turtles on each island be after 5 years?

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2. Which island saw the greatest change in turtle population?

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3. Is it possible that the most effective repopulation program may experience future turtle problems? Explain.

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4. Write the equation for each island. Include a legend for each of your variables!

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