| Standard	Mastery/Exceeds: 10	Proficient/Meets: 8.5	Partially Meets: 6.5	Does Not Meet: 4.5
5.2: Analyze functions using different representations.	• Student meets the criteria for an 8.5. • Student can interpret a parameter (the slope). • Student can extend the problem to a different situation (part d).	• Student correctly creates a table, an equation, <u>and</u> a graph.	• The student correctly constructs two representations.	• The student correctly constructs one representation.

1.) You are working in a lab that studies mold growth on bread. You are interested in how the size of a region of mold grows over time. For a certain specimen, you begin with a roughly circular moldy region with a diameter of 1.5 cm. The diameter of the moldy region appears to be growing by about 0.5 cm each day.

a) Construct a table of data for the diameter of the moldy region for the first 6 days (starting at $x = 0$ days). Make a plot of your data on the grid provided. Let x represent time (in days) and y represent the diameter of the moldy region. Be sure to label each axis.

x	y
0	1.5
1	2
2	2.5
3	3
4	3.5
5	4
6	4.5

b) Write an equation that describes the mold diameter at any time.

$$Y = 1.5 + 0.5x$$
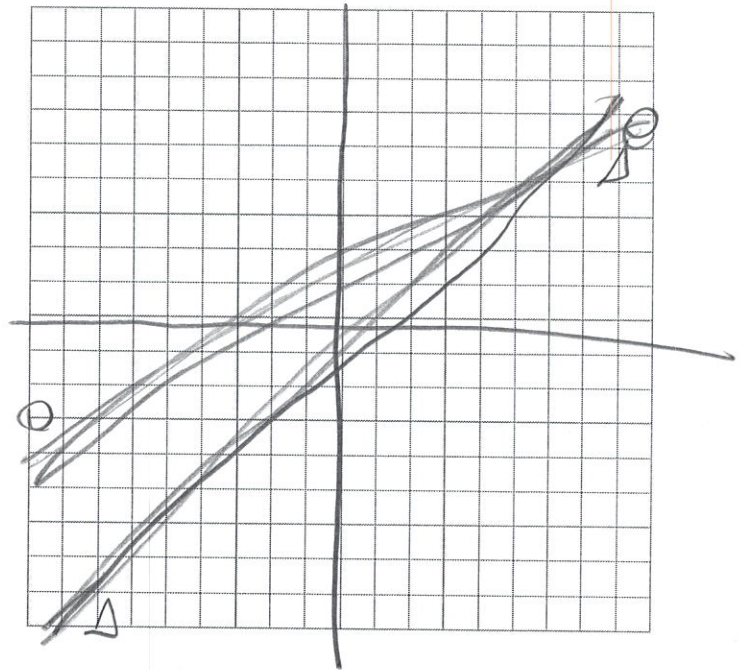
c) Identify the slope for your equation in part (b). Explain that the slope means in this context (situation).

$$(1, 0.5)$$

d) Another moldy region begins with a diameter of 0.5 cm and appears to <u>double</u> in diameter each day. Construct a table of data for the diameter of this moldy region for the first 4 days (starting at $x = 0$ days). Plot the data on the same graph, using a different symbol (like a triangle) or color for the points.

x	y
0	0
1	1
2	2
3	3
4	4

SAMPLE #2

Standard	Mastery/Exceeds: 10	Proficient/Meets: 8.5	Partially Meets: 6.5	Does Not Meet: 4.5
5.2: Analyze functions using different representations.	• Student meets the criteria for an 8.5. • Student can interpret a parameter (the slope). • Student can extend the problem to a different situation (part d).	• Student correctly creates a table, an equation, <u>and</u> a graph.	• The student correctly constructs two representations.	• The student correctly constructs one representation.

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0	1	2	3	4	5	6
1.5	2	2.5	3	3.5	4	4.5
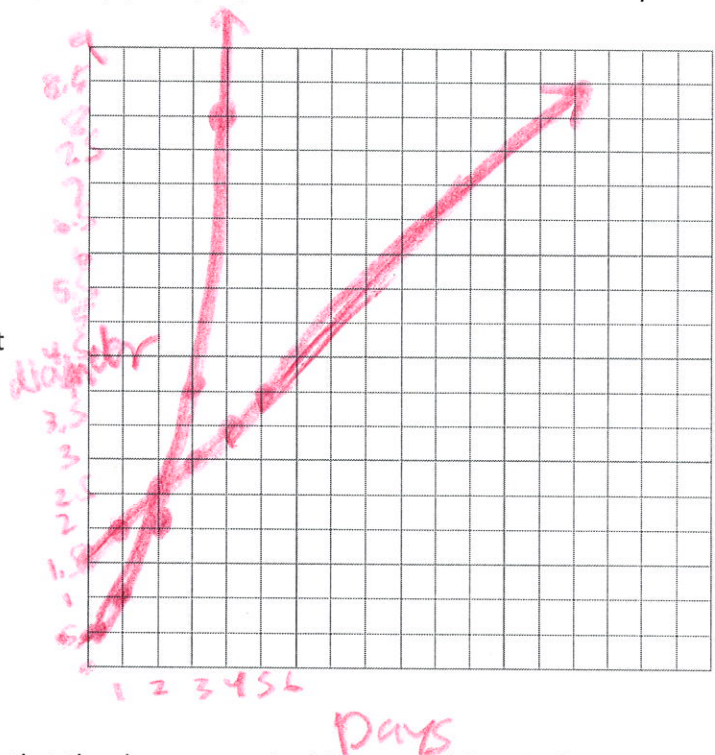
b) Write an equation that describes the mold diameter at any time.

$$x \cdot .875$$

$$y = x \text{ times } .875$$

c) Identify the slope for your equation in part (b). Explain that the slope means in this context (situation).

$$\frac{1}{1} = 1 \quad \frac{1}{.5}$$

d) Another moldy region begins with a diameter of 0.5 cm and appears to <u>double</u> in diameter each day. Construct a table of data for the diameter of this moldy region for the first 4 days (starting at $x = 0$ days). Plot the data on the same graph, using a different symbol (like a triangle) or color for the points.
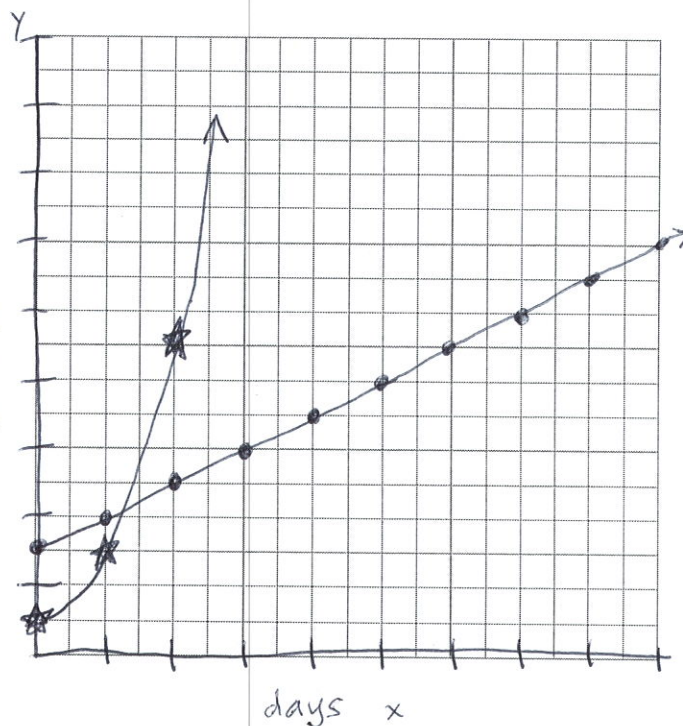
0	1	2	3	4	5	6
0.5	1	2	4	8	16	

SAMPLE #3

Standard	Mastery/Exceeds: 10	Proficient/Meets: 8.5	Partially Meets: 6.5	Does Not Meet: 4.5
5.2: Analyze functions using different representations.	• Student meets the criteria for an 8.5. • Student can interpret a parameter (the slope). • Student can extend the problem to a different situation (part d).	• Student correctly creates a table, an equation, <u>and</u> a graph.	• The student correctly constructs two representations.	• The student correctly constructs one representation.

1.) You are working in a lab that studies mold growth on bread. You are interested in how the size of a region of mold grows over time. For a certain specimen, you begin with a roughly circular moldy region with a diameter of 1.5 cm. The diameter of the moldy region appears to be growing by about 0.5 cm each day.

a) Construct a table of data for the diameter of the moldy region for the first 6 days (starting at $x = 0$ days). Make a plot of your data on the grid provided. Let x represent time (in days) and y represent the diameter of the moldy region. Be sure to label each axis.

X	Y
0	1.5
1	2
2	2.5
3	3
4	3.5
5	4

b) Write an equation that describes the mold diameter at any time.

$$Y = 0.5x + 1.5$$

c) Identify the slope for your equation in part (b). Explain that the slope means in this context (situation).

its a linear line. it means that the mold is growing at a constant steady rate

d) Another moldy region begins with a diameter of 0.5 cm and appears to <u>double</u> in diameter each day. Construct a table of data for the diameter of this moldy region for the first 4 days (starting at $x = 0$ days). Plot the data on the same graph, using a different symbol (like a triangle) or color for the points.

X	Y
0	.5
1	1.5
2	4.5
3	9.5
4	16.5
5	25.5