Name _____ Date _____

1. Complete the tables for the given rules.

Line ℓ

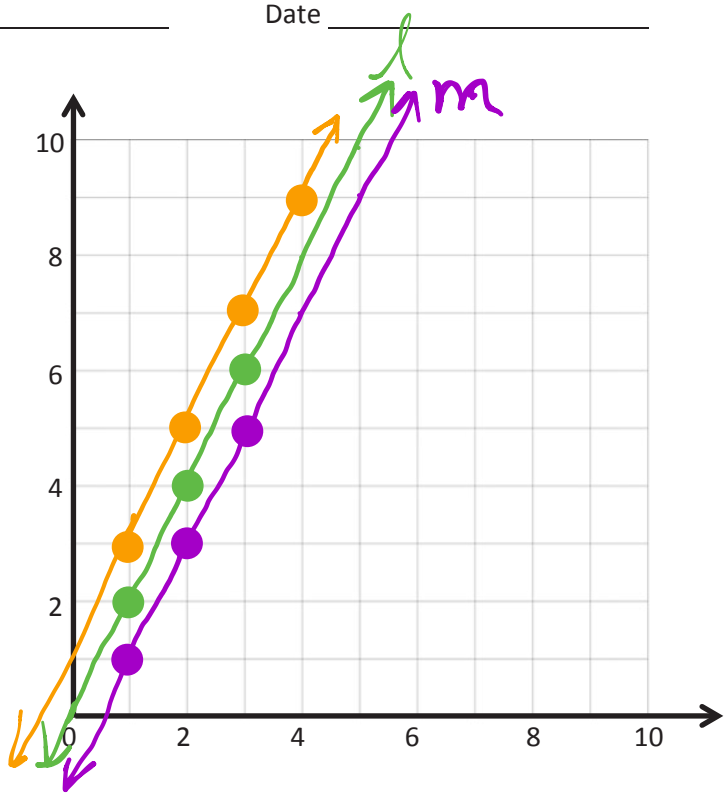
Rule: *Double* x

x	y	(x, y)
1	2	(1, 2)
2	4	(2, 4)
3	6	(3, 6)

Line m

Rule: *Double* x, *then subtract 1*

x	y	(x, y)
1	1	(1, 1)
2	3	(2, 3)
3	5	(3, 5)



a. Draw each line on the coordinate plane above.

b. Compare and contrast these lines.

(Answers will vary.)

They are parallel, but m is lower than l because we subtracted by 1.

c. Based on the patterns you see, predict what the line for the rule *double x, then add 1* would look like. Draw your prediction on the plane above.

It would be parallel to l, but 1 higher.

2. Circle the point(s) that the line for the rule *multiply x by* $\frac{1}{2}$*, then add 1* would contain.

$(0, \frac{1}{2})$ $(2, 1\frac{1}{4})$ (2, 2) $(3, \frac{1}{2})$

a. Explain how you know.

$2 \times \frac{1}{2} + 1 = 1 + 1 = 2$, so (2,2) works.

b. Give two other points that fall on this line.

(6, 4) (12, 7)

3. Complete the tables for the given rules.

Line ℓ

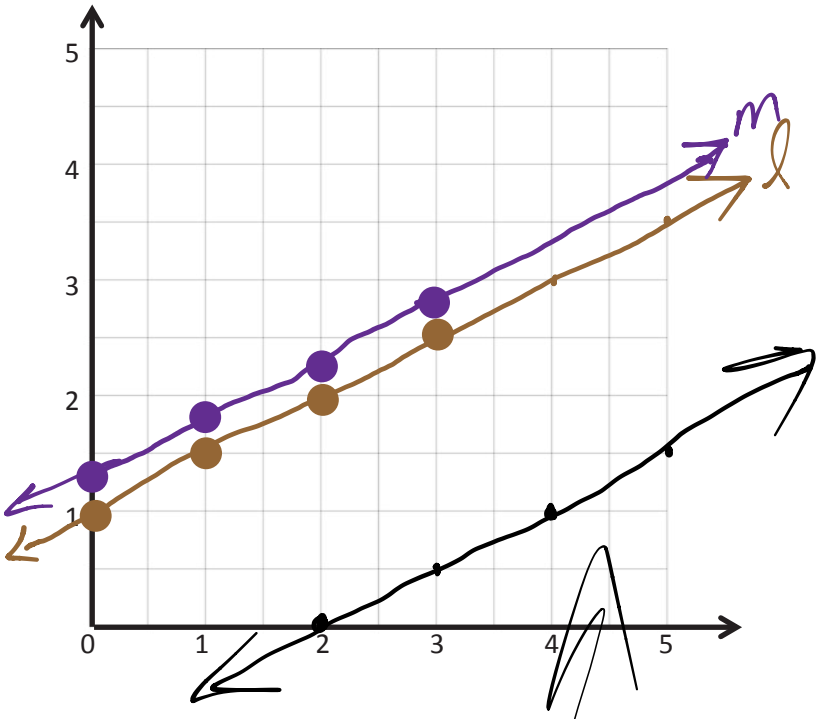
Rule: *Halve x, then add 1*

x	y	(x, y)
0	1	(0, 1)
1	$1\frac{1}{2}$	$(1, 1\frac{1}{2})$
2	2	(2, 2)
3	$2\frac{1}{2}$	$(3, 2\frac{1}{2})$

Line m

Rule: *Halve x, then add* $1\frac{1}{4}$

x	y	(x, y)
0	$1\frac{1}{4}$	$(0, 1\frac{1}{4})$
1	$1\frac{3}{4}$	$(1, 1\frac{3}{4})$
2	$2\frac{1}{4}$	$(2, 2\frac{1}{4})$
3	$2\frac{3}{4}$	$(3, 2\frac{3}{4})$



a. Draw each line on the coordinate plane above.

b. Compare and contrast these lines.

(Answers will vary.)

The lines are parallel.

c. Based on the patterns you see, predict what the line for the rule *halve x, then subtract 1* would look like. Draw your prediction on the plane above.

It would be parallel to l, but below it.

4. Circle the point(s) that the line for the rule *multiply x by* $\frac{3}{4}$, *then subtract* $\frac{1}{2}$ would contain.

$(1, \frac{1}{4})$ $(2, \frac{1}{4})$ $(3, 1\frac{3}{4})$ (3, 1)

a. Explain how you know.

$1 \times \frac{3}{4} - \frac{1}{2} = \frac{3}{4} - \frac{1}{2} = \frac{1}{4}$ and $3 \times \frac{3}{4} - \frac{1}{2} = \frac{9}{4} - \frac{2}{4} = \frac{7}{4} = 1\frac{3}{4}$

b. Give two other points that fall on this line.

$(4, 2\frac{1}{2})$ and $(8, 5\frac{1}{2})$