Warm Up

A video arcade charges an entrance fee plus a fee per game played. Two games cost $9, 4 games cost $13, and 5 games cost $15. Write an equation to find the total cost to play *x* number of games.

0	5
1	7
2	9
3	11
4	13
5	15

-2, -2, +2, +2

$y = 5 + 2x$

$y = 2x + 5$

Writing Equations:

Linear $y = b \pm mx$ **Exponential** $y = b \cdot m^x$

b = initial value

m = how much it changes by

Table	Graph	Story Problem
• Decide if it is linear or exponential. ↓ (2nd − 1st) ↓ (2nd ÷ 1st) → m b → When x = 0.	• Pick 3 consecutive points & make a table * Be sure to pick 0. * Be sure points are listed from left to right. - Follow steps for table	• Make a table • Follow steps for table

Notes 2-2

Sec 1 H **Writing Growth Equations** **Unit 2**

Example 1: Write and equation representing the table.

x	y
0	-7
1	-28
2	-112
3	-448
4	-1792

Exponential

$-28 \div -7 = 4$

$y = -7 \cdot 4^x$

$y = 4^x \cdot (-7)$

$y = -7(4)^x$

Example 2: The starting balance of Anna's account is $1,250. She deposits $30 into her account each month. How much money is in her account after 1, 2, and 3 months? Write an equation to represent the balance in her account at any month.

0	1	2	3
1250	1280	1310	1340

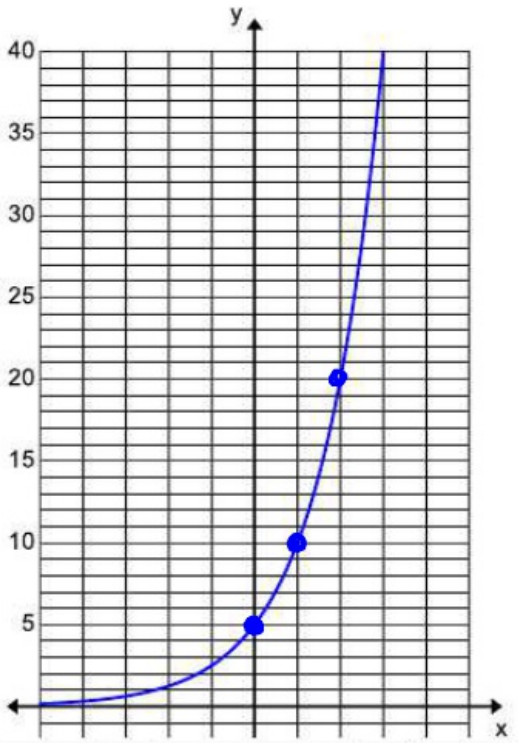
+30 +30 +30

$y = 1250 + 30x$

$y = 30x + 1250$

Example 3:

Determine the equation that represents the relationship between x and y in the graph.



x	y
0	5
1	10
2	20

$y=5\cdot 2^x$

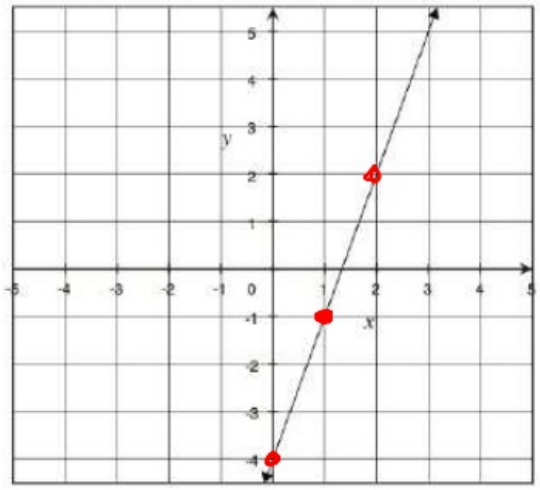
$y=2^x\cdot 5$

$y=5(2)^x$

$20\div 10=2$

Example 4:

Determine the equation that represents the relationship between x and y in the graph.



x	y
0	-4
1	-1
2	2

$y=-4+3x$

$y=3x-4$

$2--1=3$

Example 5: Jocelyn makes phone calls as part of her campaign as candidate for mayor. Of the people who say they will vote for her, she asks them to call additional people in the city to ask for votes. The amount of calls made on days 1, 3, and 4 are 40, 640, and 2560, respectively. Write an equation to represent the pattern.

0	10
1	40
2	160
3	640
4	2560

÷4, ·4, ·4

$2560 \div 640 = 4$

$y = 10 \cdot 4^x$ $y = 4^x \cdot 10$

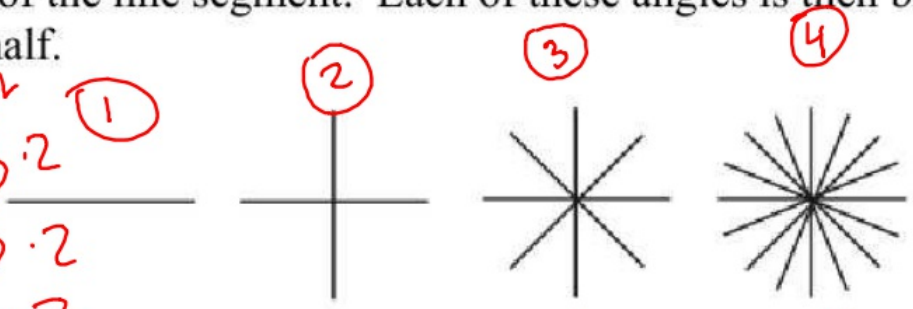
$y = 10(4)^x$ $y = (4^x)(10)$

Example 6:

Consider that the first figure below has two 180° angles, one on each side of the line segment. Each of these angles is then bisected or cut in half.

0	1
1	2
2	4
3	8
4	16

÷2, ·2, ·2, ·2



$y = 1 \cdot 2^x$ $y = 2^x$

$y = (2)^x$ $y = 1(2)^x$