

Assignment Page M2-239 – Lesson 4: Over the River and Through the Woods

Name KEY Per A B C D E F Date: _____

PRACTICE

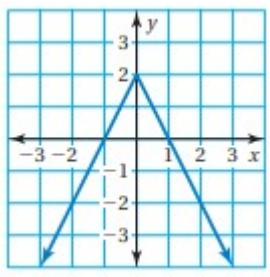
1. Given the graphs, equations and tables above, identify which tables of values are linear or non-linear functions. If it is a linear function, identify the slope.

x	y
0	25
7	20
14	15
21	10

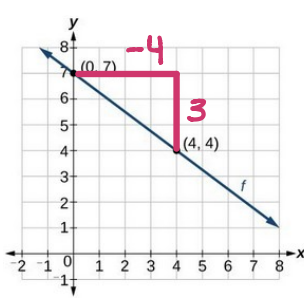
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 $\left. \begin{array}{l} \text{7} \left\langle \right. \\ \text{7} \left\langle \right. \\ \text{7} \left\langle \right. \end{array} \right\} -5$

Linear Non-Linear

$\frac{\Delta y}{\Delta x} = m = -\frac{5}{7}$



Linear Non-Linear



Linear Non-Linear

$m = \frac{\text{rise}}{\text{run}} = -\frac{3}{4}$

$y = \frac{1}{2}x + 1$

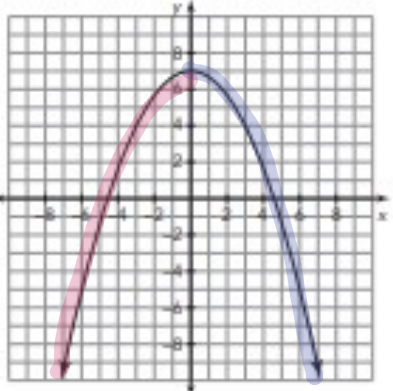
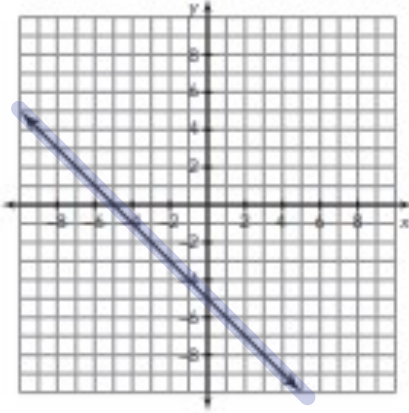
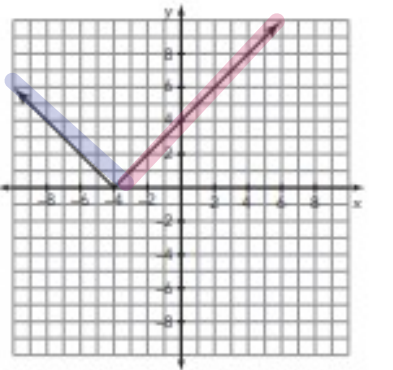
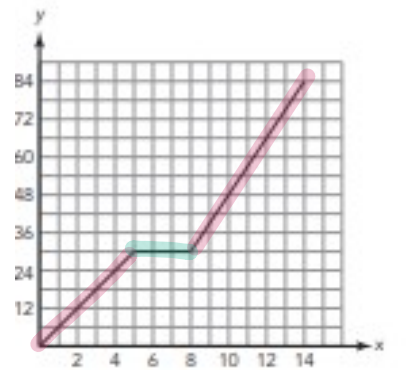
Linear Non-Linear

$m = \frac{1}{2}$

$5x^2 + 6x + 3 = 0$

Linear Non-Linear

2. For each graph describe the interval of increase, the interval of decrease, or constant interval.

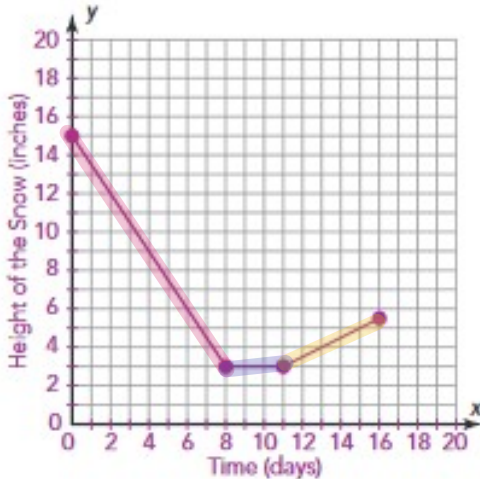
<p>a.</p>  <p>Increasing: <u>$x < 0$</u></p> <p>Decreasing: <u>$x \geq 0$</u></p> <p>Constant: <u>none</u></p>	<p>b.</p>  <p>Increasing: <u>none</u></p> <p>Decreasing: <u>ALL REAL #s</u></p> <p>Constant: <u>none</u></p>
<p>c.</p>  <p>Increasing: <u>$x < 4$</u></p> <p>Decreasing: <u>$x \geq 4$</u></p> <p>Constant: <u>none</u></p>	<p>d.</p>  <p>Increasing: <u>$0 \leq x < 5$</u></p> <p><u>$8 \leq x \leq 14$</u></p> <p>Decreasing: <u>NONE</u></p> <p>Constant: <u>$5 \leq x < 8$</u></p>

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3. When Randall wakes up Thursday morning, there are **15 inches of snow on the ground**. The meteorologist reports that because the air temperature is slowly **increasing**, the snow will melt at a rate of **1.5 inches per day** for **the next 8 days**. Then extremely cold temperatures over the following **3 days** will prevent the snow from melting anymore. However, on **day 11** of this streak of winter weather, the meteorologist predicts steady snow for the **next 5 days**, but only **1/2 of an inch will accumulate per day**.
 Let x represent the time in days since Thursday, and let y represent the height of the snow

a. Graph the function for the height of the snow over time.



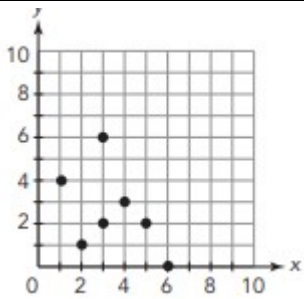
b. Describe each interval of increase, interval of decrease, or constant interval

Snow Description	Domain (Days)	Graphical Behavior (increasing, decreasing, or constant?)
Melting Snow	$0 \leq d < 8$	decreasing
Not Melting	$8 \leq d \leq 11$	constant
Steady Snow	$11 < d \leq 16$	increasing

REVIEW

4. State the domain and range of each relation. Then determine whether each is a function.

a.



(1,4)
(2,1)
(3,2)
(3,6)
(4,3)
(5,2)
(6,0)

Domain: $\{1, 2, 3, 4, 5, 6\}$

Range: $\{0, 1, 2, 3, 4, 6\}$

Function: YES **NO**

Reason: The graph does not pass vertical line test

b.

x	y
-2	2
-1	2
0	2
1	2
2	2

Domain: $\{-2, -1, 0, 1, 2\}$

Range: $\{2\}$

Function: **YES** NO

Reason: For every x-value only one y-value.