

Name: \_\_\_\_\_  
Period \_\_\_\_\_

Date: \_\_\_\_\_  
Henderson - Math 8

**12**

**Homework for Week 12**

**Monday: HW# 12A** (go to [www.Alesk.com](http://www.Alesk.com) or [www.hendersonmath.com](http://www.hendersonmath.com) for review)

State if the equation shown is linear or not linear.

1.)  $y = -x$  linear       $2x - \frac{2}{5}y = 3$  linear

2.)  $y = 4x^2 - 9$  not linear       $\frac{7}{y} + x = 2$  Not linear

3.)  $y = 5$  linear       $y = \sqrt{3x} + 5$  Not linear

4.) Explain in words how you were able to determine your answer for  $\frac{7}{y} + x = 2$ .

$\frac{7}{y} + x = 2$  in a non-linear function because it has a variable in the denominator and can not be written in  $y = mx + b$  form.

**Tuesday: HW# 12B** (go to [www.Aleks.com](http://www.Aleks.com) or [www.hendersonmath.com](http://www.hendersonmath.com) for review)

5.) Find the rate of change for the following data:

$(-4, 2)$  and  $(-4, 3)$

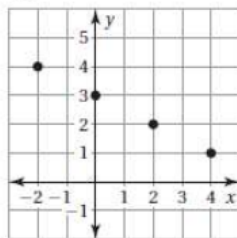
$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 2}{-4 - (-4)} = \frac{1}{0} = \text{undefined}$$

6.) Identify the rate of change in the following linear equation: -2

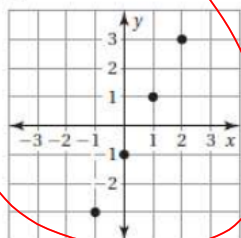
$$y = 9 - 2x$$

7.) Which of the following graphs represents the equation  $y = 2x - 1$ ? B

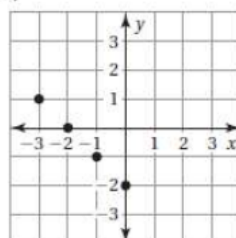
A)



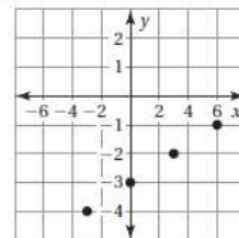
B)



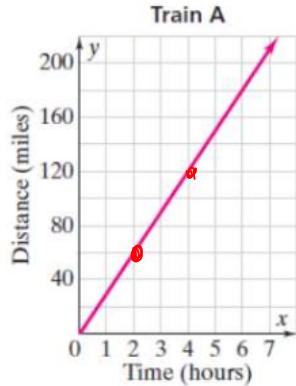
C)



D)



Three trains (A, B, and C) leave a train station at the same time. The graph shows the relationship between time and distance for Train A.



Train B  
 $y = 45x$

Train C

Time (hours)	Distance (miles)
3	105
6	210
9	315
12	420

+3( ) + 105

8. What is the slope of the graph shown?

$$\frac{\Delta y}{\Delta x} = \frac{\text{rise}}{\text{run}} = \frac{60}{2} = 30$$

9. What does this slope represent?  
 (use the axis labels to help you)

$$\frac{\Delta y}{\Delta x} = \frac{\text{distance}}{\text{time}} \text{ (miles per hour)}$$

10. The relationship between time and distance for Train B is given by the equation above, where  $x$  represents hours and  $y$  represents miles. Find the rate of change of Train B.

$$y = 45x \text{ r.o.c. } 45 \text{ miles per hour}$$

11. The time-distance relationship for Train C is shown in the table above. What is the ratio of distance to time for Train C? (hint: rate of change)

$$\frac{\Delta y}{\Delta x} = \frac{105}{3} = 35 \text{ m.p.h.}$$

12. Which train has the greatest rate of speed, Train A, Train B or Train C? How do you know?

Train B at 45 m.p.h.