**Graphing Motion: The NFL Combine 40-yard Dash**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.: \_\_\_\_\_\_\_\_\_**

1. What is the 40-yard dash?
2. What are NFL coaches looking for in this event?
3. What is the definition of velocity? What is the equation for calculating velocity?
4. Find and record the 40-dash times from the NFL Combine for the following individuals:

|  |  |  |  |
| --- | --- | --- | --- |
| **Player** | **School** | **40-yard Dash Time** | **Color for Graph** |
| Steven Nelson |  |  | Orange |
| Arik Armstead |  |  | Green |
| Rich Eisen (2015) | NFL Network anchor |  | Red |
| Chris Johnson |  |  | Purple |
| You |  |  |  |

1. Calculate the velocity for each of the individuals in the table above for the 40-yard dash.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Distance** | **Time** | **Velocity** |
| Steven Nelson |  |  |  |
| Arik Armstead |  |  |  |
| Rich Eisen (2015) |  |  |  |
| Chris Johnson |  |  |  |
| You |  |  |  |

1. Who had the fastest velocity? Why?
2. Who had the slowest velocity? Why?
3. Create a distance vs. time graph and graph the 40-yard dash time for each individual. Include a key that shows which color was used to graph each individual’s data.

X axis = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Y axis = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Compare and contrast the graphed lines for the individual who had the fastest 40-yard dash velocity and the individual who had the slowest 40-yard dash velocity.

**~~~~~~~~~ Stop here and read p. 14 - 15 in the book. Then come back and finish the questions. ~~~~~~~~~**

1. What is slope? What is the equation for slope?
2. What does slope tell you about velocity?
3. Choose one of the players from the graph: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Choose 2 points on the graphed line for this player (**not** 0m or 40m).

**Point 1:** x = \_\_\_\_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_\_\_\_ **Point 2:** x = \_\_\_\_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_\_\_\_

1. Calculate the rise of the line. (Show your work!)
2. Calculate the run of the line. (Show your work!)
3. Calculate the slope of the line. (Show your work!)
4. Compare the velocity of the player to the slope of the line for that player. (Sentence frames!)
5. What is the relationship between the slope of a line on a distance vs. time graph and the velocity of the object/person being graphed?