**Assignment #9**

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 **Relations and Functions**

**Grade: 9-12**

**Time: 90 min.**

**Learning Objectives: 1. Find the domain and range of a relation.**

 **2. Determine whether a relation is a function.**

 **3. Explain the mathematical term function .**

 **4. Name several ways a function can be represented.**

 **5. Find the domain and range of a given function.**

 **6. Construct a formula for a verbally described function.**

 **7. Determine whether a curve is the graph of a function.**

 **8. Identify whether given patterns represent linear functions.**

 **9. Represent functions in different ways-real world applications.**

 **Strategies (What will the students be doing?): • Directed instruction**

 **• Class discussion**

 **• Models examples**

 **• Independent practice and review**

 **• Cooperative learning-groups**

**Procedure:**

**1. Direct instruction through power point and interactive promethean smart board.**

**2. Class discussion-examples from real world:**

 **Which situation represents a function?**

**a. The items in a store to their prices on a certain date.**

**b. Types of fruits to their colors.**

**3. Have students come to the smart board to identify relations and functions.**

**4. Have students identify if the given relations represent functions individually.**

**5. Have students share in groups of 4, representing functions-real world applications worksheet and reasons why their solution makes sense. (low ceiling)**

**6. Ask students if they saw the problem the same or differently?**

**7. Ask students how they can connect the patterns they see from geometry to linear functions**

**8. Group students in pairs and have them create a math problem for others to solve. (high ceiling)**

 **Guided Practice:**

**Work a practice problem, to identify whether given patterns represent linear functions-together as a class.**

 **Independent Practice:**

 **Have students work a math problem created from other students.**

**Assessment (How will you determine what the students learned?):**

**• Questions and Answers**

**• Observation**

**• Homework –problems from the math book.**

**Exit ticket:**

**Three things I learned today about linear functions…**

**The question I have is about….**

**The students get involved in the group work, and they use a lot coloring patterns and functions. The part they enjoy is usually when they have to create their own function from their daily life for another student, and they get correct by their partners in groups for finding a relation instead of a function. One of the students wrote on their group activity worksheet “ You cannot spell FUNctions without FUN ☺” In the group activity I would add more examples about a pattern growing, since can be solved using linear functions representations, and this will offer students the possibility to think deep about the taught concept. By extending the task to make it lower floor and higher ceiling, the lesson is richer, offering students a growth mathematical mindset.**