1. A town has an initial population of 70000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	69977	69965	69937	69925	69897	69885	69857	69845	69817

2. For the information below, construct a linear model that describes the total time T spent on the path in terms of the distance of a particular part of the path *if we know that all parts of the path are equal length.*

   A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 6 mph, 10 mph when traveling down a hill, and 8 mph when traveling along a flat portion.

3. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $600 educational expense each year. Before college, Aubrey saved up $10000. She knows she will need to pay $1200 in rent a month, $50 for food a week, and $48 in other weekly expenses.

4. What is the **best** way to describe the domain of the scenario below?

Chemists commonly create a solution by mixing two products of differing concentrations together. A 10% and 30% solution can make an acid solution of some value between these, such as a 24% acid solution. The chemist wants to make differing solution percentages of 7 liters each.

5. What is the **best** way to describe the domain of the scenario below?

Hannah plans to pay off a no-interest loan from her parents. Her loan balance is $1,000. She plans to pay $35 at the end of every week until her balance is $0. How many weeks will it be until she has paid off her loan?

6. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $400 educational expense each year. Before college, Aubrey saved up $10000. She knows she will need to pay $1200 in rent a month, $80 for food a week, and $56 in other weekly expenses.

7. For the information provided below, construct a linear model that describes the total distance of the path, D, in terms of the time spent on a particular path *if we know that the time spent on each path was equal.*

   A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 6 mph, 10 mph when traveling down a hill, and 7 mph when traveling along a flat portion.

8. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the high-quality coffee beans h.

Veronica needs to prepare 210 of blended coffee beans selling for $4.00 per pound. She has a high-quality bean that sells for $4.83 a pound and a low-quality bean that sells for $2.88 a pound.

9. A town has an initial population of 40000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	40018	40046	40058	40086	40098	40126	40138	40166	40178

10. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the high-quality coffee beans h.

Veronica needs to prepare 200 of blended coffee beans selling for $4.23 per pound. She has a high-quality bean that sells for $5.06 a pound and a low-quality bean that sells for $2.53 a pound.