1. A town has an initial population of 30000. The town's population for the next 10 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.	30120	30360	31080	33240	39720	59160	117480	292440	817320

   A. Non-Linear Power

   B. Linear

   C. Logarithmic

   D. Exponential

   E. None of the above

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

   Two UFPD are patrolling the campus on foot. To cover more ground, they split up and begin walking in different directions. Office A is walking at 3 mph while Office B is walking at 5 mph.

   A. Subset of the Integers

   B. Subset of the Natural numbers

   C. Proper subset of the Real numbers

   D. There is no restricted domain in this scenario

   E. Subset of the Rational numbers

3. A town has an initial population of 90000. The town's population for the next 10 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.	90000	90034	90054	90069	90080	90089	90097	90103	90109

   A. Non-Linear Power

   B. Exponential

C. Logarithmic

D. Linear

E. None of the above

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4. For the information provided below, construct a linear model that describes her total income, I, 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 $800 educational expense each year. Before college, Aubrey saved up $6000. She knows she will need to pay $900 in rent a month, $80 for food a week, and $32 in other weekly expenses.

   A. $I(x) = 6800x$

   B. $I(x) = 6000x + 800$

   C. $I(x) = 800x + 6000$

   D. $I(x) = 6800$

   E. None of the above.

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5. 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 low-quality coffee beans h.

   Veronica needs to prepare 230 of blended coffee beans selling for $5.07 per pound. She has a high-quality bean that sells for $6.90 a pound and a low-quality bean that sells for $4.01 a pound.

   A. $C(h) = 5.46h$

   B. $C(h) = 4.01h$

   C. $C(h) = -2.89h + 1587.00$

   D. $C(h) = 2.89h + 922.30$

   E. None of the above.

6. 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 low-quality coffee beans h.

Veronica needs to prepare 230 of blended coffee beans selling for $3.53 per pound. She has a high-quality bean that sells for $4.40 a pound and a low-quality bean that sells for $2.57 a pound.

A. $C(h) = 3.49h$

B. $C(h) = 1.83h + 591.10$

C. $C(h) = 2.57h$

D. $C(h) = -1.83h + 1012.00$

E. None of the above.

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

Fred is a store manager at Publix. The store normally orders two pallets of water bottles a week and sells 1000 bottles per day. However, a hurricane is coming and Fred expects water bottle sales to increase tenfold for three days, then decrease by half of normal sales for four days. How many more pallets of water bottles should Fred order the week before the hurricane?

A. Proper subset of the Real numbers

B. Subset of the Integers

C. There is no restricted domain in this scenario

D. Subset of the Rational numbers

E. Subset of the Natural numbers

8. 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 $600 educational expense each year. Before college, Aubrey saved up $7000. She knows she will need to pay $700 in rent a month, $80 for food a week, and $32 in other weekly expenses.

A. $C(x) = 1148x$

B. $C(x) = 812x$

C. $C(x) = 1148$

D. $C(x) = 812$

E. None of the above.

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9. 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 4 mph, 7 mph when traveling down a hill, and 5 mph when traveling along a flat portion.

A. $140.000D$

B. $16.000D$

C. $0.593D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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10. 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 4 mph, 8 mph when traveling down a hill, and 5 mph when traveling along a flat portion.

A. $0.575D$

B. $17.000D$

C. $160.000D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.