1. A town has an initial population of 50000. 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.	50100	50200	50400	50800	51600	53200	56400	62800	75600

   A. Non-Linear Power

   B. Linear

   C. Logarithmic

   D. Exponential

   E. None of the above

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

   A. $70.000D$

   B. $0.843D$

   C. $14.000D$

   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.

3. 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 $1000 educational expense each year. Before college, Aubrey saved up $8000.

She knows she will need to pay $700 in rent a month, $70 for food a week, and $56 in other weekly expenses.

   A. $C(x) = 826x$

   B. $C(x) = 1204$

   C. $C(x) = 1204x$

   D. $C(x) = 826$

   E. None of the above.

---

4. A town has an initial population of 20000. 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.	19977	19965	19937	19925	19897	19885	19857	19845	19817

   A. Non-Linear Power

   B. Logarithmic

   C. Exponential

   D. Linear

   E. None of the above

---

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?

   A. Proper subset of the Real numbers

   B. Subset of the Integers

   C. Subset of the Rational numbers

   D. Subset of the Natural numbers

    E. There is no restricted domain in this scenario

---

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 $600 educational expense each year. Before college, Aubrey saved up $8000. She knows she will need to pay $1200 in rent a month, $80 for food a week, and $40 in other weekly expenses.

    A. $C(x) = 1320$

    B. $C(x) = 1680x$

    C. $C(x) = 1320x$

    D. $C(x) = 1680$

    E. None of the above.

---

7. 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?

    A. Subset of the Natural numbers

    B. Subset of the Integers

    C. Proper subset of the Real numbers

    D. Subset of the Rational numbers

    E. There is no restricted domain in this scenario

---

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 low-quality

coffee beans h.

Veronica needs to prepare 150 of blended coffee beans selling for $5.82 per pound. She has a high-quality bean that sells for $6.47 a pound and a low-quality bean that sells for $4.98 a pound.

A. $C(h) = -1.49h + 970.50$

B. $C(h) = 5.72h$

C. $C(h) = 4.98h$

D. $C(h) = 1.49h + 747.00$

E. None of the above.

---

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

A. $0.561t$

B. $18t$

C. $180t$

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.

---

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 130 of blended coffee beans selling for $3.50 per pound. She has a high-quality bean that sells for $4.33 a pound and a low-quality bean that sells for $2.45 a pound.

A. $C(h) = 4.33h$

B. $C(h) = 1.88h + 318.50$

C. $C(h) = 3.39h$

D. $C(h) = -1.88h + 562.90$

E. None of the above.