1. A town has an initial population of 20000. 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	20000	19986	19978	19972	19967	19964	19961	19958	19956

   A. Linear

   B. Logarithmic

   C. Non-Linear Power

   D. Exponential

   E. None of the above

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2. 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 $900 in rent a month, $40 for food a week, and $40 in other weekly expenses.

   A. $C(x) = 7600$

   B. $C(x) = 980$

   C. $C(x) = 7600x$

   D. $C(x) = 980x$

   E. None of the above.

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3. 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 5 mph, 8 mph when traveling down a hill, and 6 mph when traveling along a flat portion.

A. $19.000D$

B. $240.000D$

C. $0.492D$

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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4. 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 $5000. She knows she will need to pay $700 in rent a month, $60 for food a week, and $32 in other weekly expenses.

A. $C(x) = 792x$

B. $C(x) = 6000$

C. $C(x) = 792$

D. $C(x) = 6000x$

E. None of the above.

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

Veronica needs to prepare 170 lbs of blended coffee beans to sell for $4.71 per pound. She has a high-quality bean that sells for $6.00 a pound and a low-quality been that sells for $3.25 a pound.

A. Subset of the Integers

B. There is no restricted domain in this scenario

C. Subset of the Natural numbers

D. Subset of the Rational numbers

E. Proper subset of the Real numbers

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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 high-quality coffee beans h.

Veronica needs to prepare 170 of blended coffee beans selling for $4.16 per pound. She has a high-quality bean that sells for $5.11 a pound and a low-quality bean that sells for $3.17 a pound.

A. $C(h) = -1.94h + 868.70$

B. $C(h) = 4.14h$

C. $C(h) = 1.94h + 538.90$

D. $C(h) = 5.11h$

E. None of the above.

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7. 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 5 mph, 11 mph when traveling down a hill, and 7 mph when traveling along a flat portion.

A. $385.000D$

B. $23.000D$

C. $0.434D$

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.

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

The rate at which a cricket chirps is a linear function of temperature. At 59 degrees F they make 76 chirps per minute and at 65 degrees F they make 100 chirps per minute.

A. Subset of the Rational numbers

B. Proper subset of the Real numbers

C. Subset of the Integers

D. Subset of the Natural numbers

E. There is no restricted domain in this scenario

9. 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	70027	70057	70095	70125	70147	70177	70215	70245	70267

A. Non-Linear Power

B. Linear

C. Logarithmic

D. Exponential

E. None of the above

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 low-quality coffee beans h.

Veronica needs to prepare 150 of blended coffee beans selling for $5.03 per pound. She has a high-quality bean that sells for $5.86 a pound and a low-quality bean that sells for $4.39 a pound.

A. $C(h) = 4.39h$

B. $C(h) = 1.47h + 658.50$

C. $C(h) = 5.12h$

D. $C(h) = -1.47h + 879.00$

E. None of the above.
