1.

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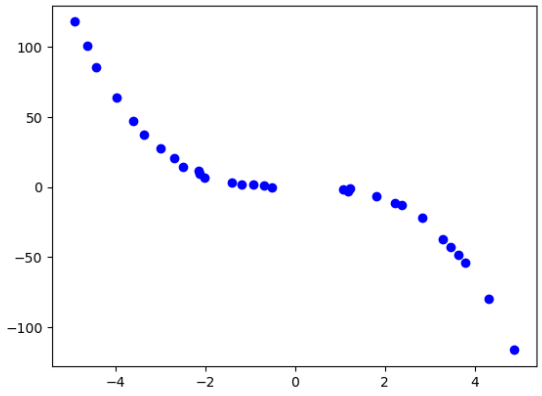
2. Determine the appropriate model for the graph of points below.



A. Linear model

B. Exponential model

C. Non-linear Power model

D. Logarithmic model

E. None of the above

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3. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 24 liter 8 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 6 percent and 25 percent solutions, what was the amount she used of the 6 percent solution?

A. 15.43

B. 2.53

C. 21.47

D. 12.00

E. There is not enough information to solve the problem.

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4. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 4 many cases reported, but the number of confirmed cases has tripled every 5 days. How long will it be until there are at least 10000 confirmed cases?

A. About 40 days

B. About 20 days

C. About 19 days

D. About 36 days

E. There is not enough information to solve the problem.

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5. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 33 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

A. About 3 percent

B. About 15 percent

C. About 16 percent

D. About 10 percent

E. None of the above

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6. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 24 liter 17 percent solution of chemical χ using two different solution percentages of chemical χ.

When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 14 percent and 35 percent solutions, what was the amount she used of the 14 percent solution?

A. 12.00

B. 20.57

C. 3.43

D. 5.92

E. There is not enough information to solve the problem.

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7. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 5 many cases reported, but the number of confirmed cases has doubled every 2 days. How long will it be until there are at least 1000000 confirmed cases?

A. About 11 days

B. About 25 days

C. About 36 days

D. About 12 days

E. There is not enough information to solve the problem.

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8. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 30 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

A. About 14 percent

B. About 9 percent

C. About 3 percent

D. About 15 percent

E. None of the above

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9. For the scenario below, model the rate of vibration (cm/s) of the string in terms of the length of the string. Then determine the variation constant k of the model (if possible). The constant should be in terms of cm and s.

   The rate of vibration of a string under constant tension varies based on the type of string and the length of the string. The rate of vibration of string ω decreases as the quartic length of the string increases. For example, when string ω is 5 mm long, the rate of vibration is 33 cm/s.

   A. $k = 0.05$

   B. $k = 2.06$

   C. $k = 528.00$

   D. $k = 20625.00$

   E. None of the above.

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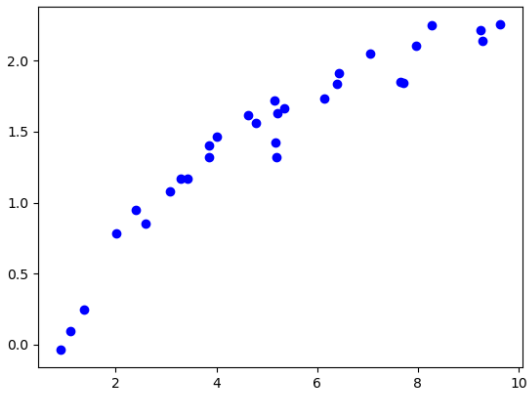
10. Determine the appropriate model for the graph of points below.



   A. Non-linear Power model

B. Linear model

C. Logarithmic model

D. Exponential model

E. None of the above
