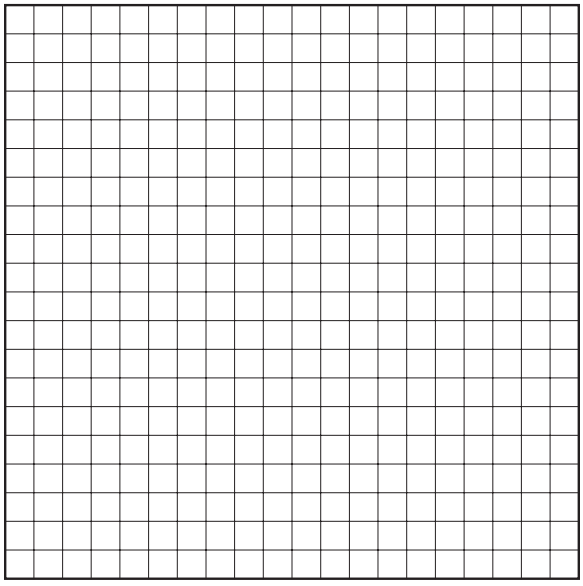
Name: **Date:**

Practice: Sinusoidal Regression A

The following table shows the temperature, in degrees Fahrenheit, in a small town during the day. The hours are given in 24-hour time. Use the table to complete problems 1–3.

Hour	Temperature (°F)
2	57
5	57
8	59
11	68
14	78
17	82
20	77
23	73

1. Create a scatter plot of the data.



2. Plot the function $y = 13 \sin(0.24x - 2.6) + 68$ on the scatter plot. Is it a good fit?

3. Estimate the temperature at noon (hour 12).

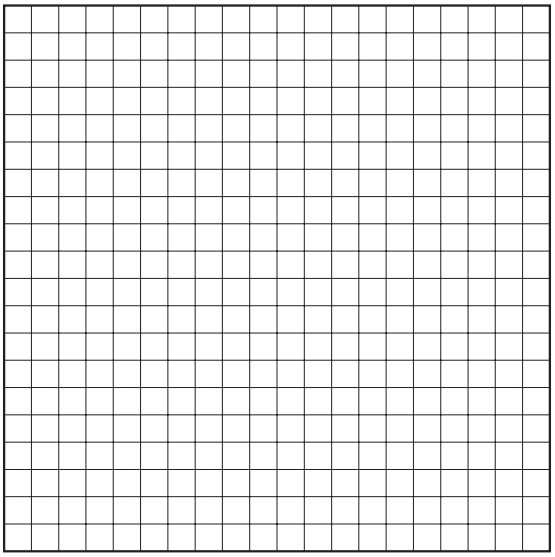
continued

Name: **Date:**

The following table shows monthly snowfall totals, in inches, for Anchorage, Alaska. Use the table to complete problems 4–7.

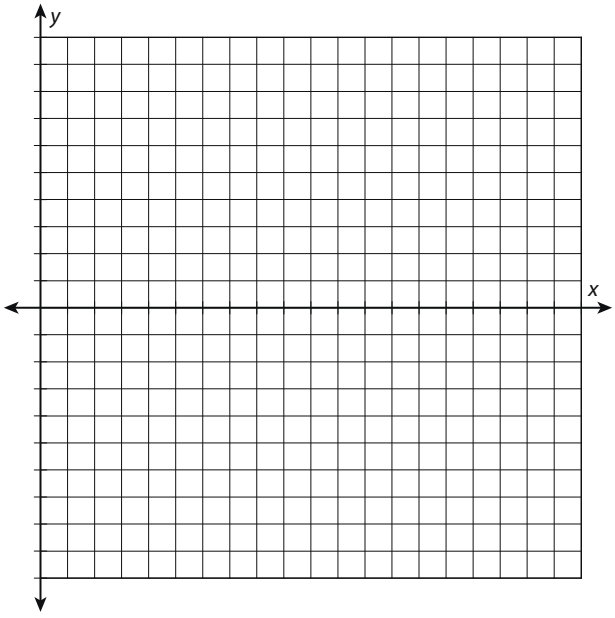
Month	1	2	3	4	5	6	7	8	9	10	11	12
Snowfall (inches)	11.3	10.9	9.9	4	0	0	0	0.3	0.4	7.9	13.1	16.7

4. Create a scatter plot of the data.



5. Find a sinusoidal regression for the data.

6. Create a residual plot for the regression.



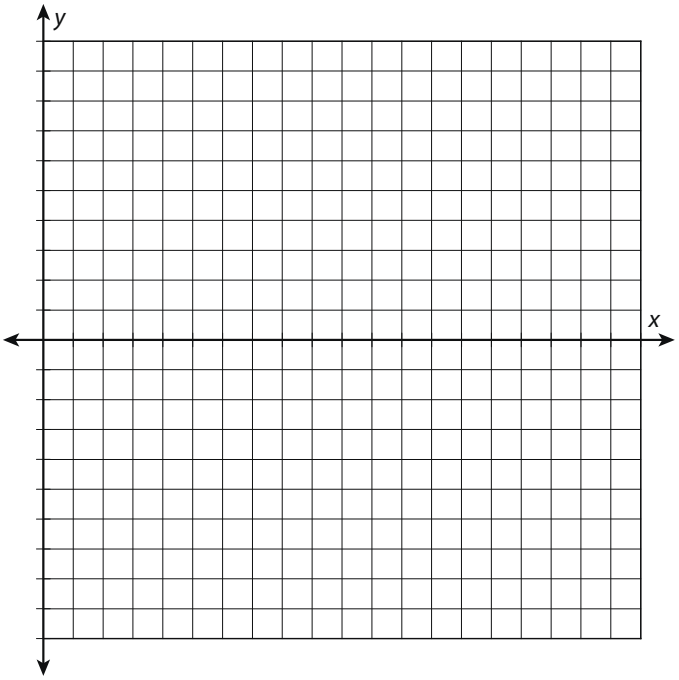
7. Is a sine function a good fit?

continued

Kaspar decided to model the movement of the London Eye, a large Ferris wheel located on the Thames River in London. He chose a particular platform, and estimated its height above the ground as it made its way around the wheel. Kaspar's results are recorded in the following table. Use the table to complete problems 8–10.

Time (minutes)	Height (meters)
0	15
5	45
10	105
15	135
20	105
25	45
30	15

8. Create a residual plot for the function $y = -0.49x^2 + 14.57x + 5.71$. Is it a good fit?



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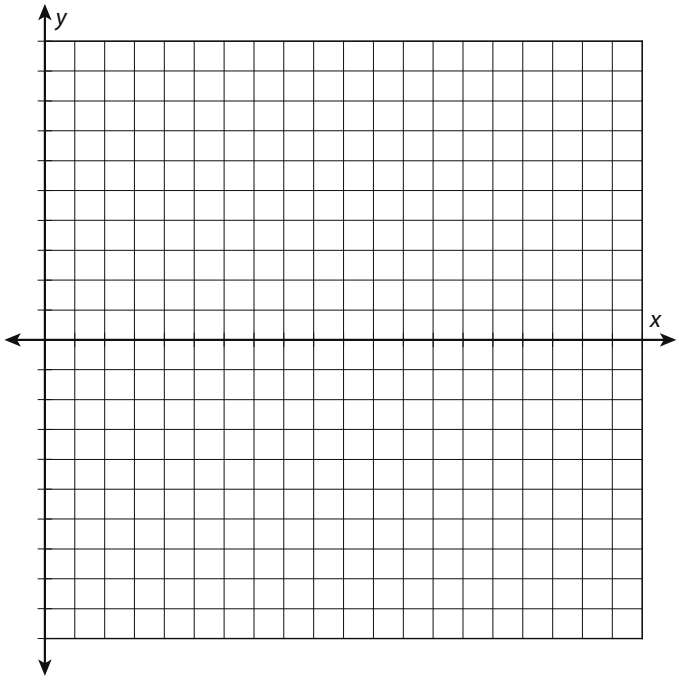
Name: **Date:**

9. Create a residual plot for the function $y = 60 \sin(0.21x - 1.57) + 75$. Is it a good fit?



10. Which function is a better fit?