 Matching activity for modified exponential growth and decay

Activity

Match the initial condition, an additional data point, P and the exponential equation and dN/dt.

Note: k values have been rounded to 4 decimal places.

Initial condition

|  |  |  |  |
| --- | --- | --- | --- |
| When t = 0, N = 40 | When t = 0, N = 40 | When t = 0, N = 40 | When t = 0, N = 40 |
| When t = 0, N = 55 | When t = 0, N = 55 | When t = 0, N = 55 | When t = 0, N = 55 |

Additional data point

|  |  |  |  |
| --- | --- | --- | --- |
| When t = 2, N = 44 | When t = 5, N = 60 | When t = 7, N = 45 | When t = 10, N = 25 |
| When t = 15, N = 35 | When t = 25, N = 67 | When t = 5, N = 40 | When t = 5, N = 50 |

Exponential equation

|  |  |  |  |
| --- | --- | --- | --- |
| N = 30+25e-0.1833t | N = 15+25e-0.0916t | N = 15+25e0.1176t | N = 15+40e0.0105t |
| N = 30+25e-0.1073t | N = 30+10e0.1682t | N = 30+10e0.1386t | N = 15+40e-0.0411t |

P

|  |  |  |  |
| --- | --- | --- | --- |
| 15 | 15 | 15 | 15 |
| 30 | 30 | 30 | 30 |

dN/dt

|  |  |  |  |
| --- | --- | --- | --- |
| dN/dt = 0.1176(N - 15) | dN/dt = -0.1833(N - 30) | dN/dt = 0.1386(N - 30) | dN/dt = -0.0916(N - 15) |
| dN/dt = -0.0411(N - 15) | dN/dt = -0.1073(N - 30) | dN/dt = 0.0105(N - 15) | dN/dt = 0.1682(N - 30) |