# Adstock Rate - Deriving with Analytical Method

**Instructions**

1. Insert Sales and Advertising
2. Open Solver by going to the Data menu and selecting Solver
   If Solver isn't available then load the Add-in.
3. Click Solve

| | Sales | Advertising Before Adstock | Advertising After Adstock | Model Results After Adstock | |
|---|---|---|---|---|---|
| 1 | 670,871 | 0.664 | 0.664 | Adstock Rate | 48.25% |
| 2 | 35,524,494 | 1.163 | 1.483 | α | 54465408.7 |
| 3 | 50,173,057 | 1.163 | 1.878 | β | 6364013.5678 |
| 4 | 46,849,336 | 1.163 | 2.069 | SSE | ############## |
| 5 | 39,246,118 | 1.080 | 2.078 | Correlation | 0.3939 |
| 6 | 21,362 | 0.581 | 1.584 | R-Squared | 0.1551 |
| 7 | 8,831 | 0.581 | 1.346 | | |
| 8 | 17,987 | 0.581 | 1.231 | | |
| 9 | 72,788 | 0.581 | 1.175 | | |
| 10 | 70,691,096 | 1.196 | 1.763 | | |
| 11 | 98,352,774 | 1.442 | 2.292 | | |
| 12 | 96,408,086 | 1.442 | 2.548 | | |
| 13 | 97,663,276 | 1.442 | 2.671 | | |
| 14 | 72,524,082 | 4.003 | 5.292 | | |
| 15 | 44,150,510 | 7.419 | 9.972 | | |
| 16 | 293,596,202 | 7.419 | 12.230 | | |
| 17 | 52,892,091 | 7.419 | 13.319 | | |
| 18 | 91,911,501 | 7.419 | 13.845 | | |
| 19 | 93,892,473 | 1.209 | 7.889 | | |
| 20 | 120,030,002 | 1.209 | 5.015 | | |
| 21 | 50,012,648 | 1.209 | 3.629 | | |
| 22 | 47,577,866 | 1.209 | 2.960 | | |
| 23 | 66,395,702 | 2.206 | 3.634 | | |
| 24 | 108,721,179 | 2.605 | 4.358 | | |
| 25 | 69,263,878 | 2.605 | 4.707 | | |
| 26 | 154,607,585 | 2.605 | 4.876 | | |
| 27 | 71,141,134 | 2.140 | 4.492 | | |
| 28 | 69,654,386 | 0.977 | 3.144 | | |
| 29 | 62,962,474 | 0.977 | 2.494 | | |
| 30 | 147,178,533 | 0.977 | 2.180 | | |
| 31 | 73,797,654 | 0.977 | 2.028 | | |
| 32 | 76,441,432 | 1.116 | 2.095 | | |
| 33 | 69,958,251 | 1.140 | 2.150 | | |
| 34 | 84,762,834 | 1.140 | 2.177 | | |
| 35 | 89,314,294 | 1.140 | 2.190 | | |
| 36 | 73,083,886 | 1.189 | 2.246 | | |

| | | | |
|---|---|---|---|
| 37 | 148,786,415 | 1.209 | 2.293 |
| 38 | 77,341,625 | 1.209 | 2.316 |
| 39 | 70,677,953 | 1.209 | 2.326 |
| 40 | 73,150,392 | 1.143 | 2.265 |
| 41 | 81,245,287 | 0.977 | 2.070 |
| 42 | 69,788,971 | 0.977 | 1.975 |
| 43 | 52,650,999 | 0.977 | 1.930 |
| 44 | 114,397,752 | 0.977 | 1.908 |
| 45 | 74,672,993 | 1.605 | 2.525 |
| 46 | 76,415,745 | 1.605 | 2.823 |
| 47 | 78,010,767 | 1.605 | 2.967 |
| 48 | 150,047,690 | 1.605 | 3.036 |
| 49 | 67,177,030 | 1.179 | 2.644 |
| 50 | 68,384,498 | 0.860 | 2.136 |
| 51 | 70,872,725 | 0.860 | 1.891 |
| 52 | 75,167,242 | 0.860 | 1.773 |
| 53 | 51,431,436 | 0.615 | 1.470 |