

### Kinematics – Key Formulas

| Equation                                                   | Variable   |       |       |            |     |
|------------------------------------------------------------|------------|-------|-------|------------|-----|
|                                                            | $\Delta d$ | $V_1$ | $V_2$ | $\Delta t$ | $a$ |
| 1.<br>$\Delta d = \frac{V_1 + V_2}{2} \Delta t$            | ☆          | ✓     | ✓     | ✓          | ✗   |
| 2.<br>$a = \frac{V_2 - V_1}{\Delta t}$                     | ✗          | ✓     | ✓     | ✓          | ☆   |
| 3.<br>$\Delta d = V_1 \Delta t + \frac{1}{2} a \Delta t^2$ | ☆          | ✓     | ✗     | ✓          | ✓   |
| 4.<br>$\Delta d = V_2 \Delta t - \frac{1}{2} a \Delta t^2$ | ☆          | ✗     | ✓     | ✓          | ✓   |
| 5.<br>$V_2^2 = V_1^2 + 2a\Delta d$                         | ✓          | ✓     | ☆     | ✗          | ✓   |