Can't see it?

Then you need to memorize it or actually do the math in your calculator ☹

Change factor to Rate = [Change factor for Concentration]^x

Examples of determining the orders by actually plugging in			
rate doesn't change	$1 = 2^x$	*concentration doubles*	$x = 0$
rate doubles	$2 = 2^x$	*concentration doubles*	$x = 1$
rate quadruples	$4 = 2^x$	*concentration doubles*	$x = 2$
rate increases x8	$8 = 2^x$	*concentration doubles*	$x = 3$
rate is cut in half	$\frac{1}{2} = 2^x$	*concentration doubles*	$x = -1$
rate doesn't change	$1 = 3^x$	*concentration triples*	$x = 0$
rate triples	$3 = 3^x$	*concentration triples*	$x = 1$
rate increases by x9	$9 = 3^x$	*concentration triples*	$x = 2$
rate is cut in thirds	$^1/_3 = 3^x$	*concentration triples*	$x = -1$
rate quadruples	$4 = 4^x$	*concentration quadruples*	$x = 1$
Etc…etc…etc…			

Finding Units for k

Remember:

$$rate = k[A]^x[B]^y \; etc \ldots$$

Rearrange:

$$k = \frac{rate}{[A]^x[B]^y \; etc \ldots}$$

Remember:

$$rate \; units = \frac{M}{s}$$
$$Concentration \; unts = M$$
$$Overall \; Order = (x + y + etc \ldots)$$

Substitute in your units and rewrite:

$k = \frac{M/s}{M^{(x+y+etc\ldots)}}$ → $k = \frac{M}{M^{(x+y+etc\ldots)} \bullet s}$ → **then cancel out units**

Units for k based on overall order of reaction $k = \frac{M}{M^{(x+y+etc\ldots)} \bullet s}$		
Overall Order	**Example of Units Plugged In**	**Final Units for k**
0	$k = \frac{M}{M^{(0)} \bullet s} = \frac{M}{1 \bullet s}$	$\frac{M}{s} = Ms^{-1}$
1	$k = \frac{M}{M^{(1)} \bullet s} = \frac{\cancel{M}}{\cancel{M} \bullet s}$	$\frac{1}{s} = s^{-1}$
2	$k = \frac{M}{M^{(2)} \bullet s} = \frac{\cancel{M}}{\cancel{M} \bullet M \bullet s}$	$\frac{1}{M \bullet s} = M^{-1}s^{-1}$
3	$k = \frac{M}{M^{(3)} \bullet s} = \frac{\cancel{M}}{\cancel{M} \bullet M \bullet M \bullet s}$	$\frac{1}{M^2 \bullet s} = M^{-2}s^{-1}$
4	$k = \frac{M}{M^{(4)} \bullet s} = \frac{\cancel{M}}{\cancel{M} \bullet M \bullet M \bullet M \bullet s}$	$\frac{1}{M^3 \bullet s} = M^{-3}s^{-1}$
Etc…etc…etc…		

Remember: $M = \frac{mol}{L}$ $\quad \frac{1}{M} = M^{-1} = \frac{L}{mol}$

↑

You may see this substituted into k units.

For example: $M^{-1}s^{-1} = \frac{L}{mol \bullet s}$