

$$X \cdot w + b = Y$$

The diagram illustrates the linear equation  $Y = X \cdot w + b$  using visual representations of matrices and vectors:

- $X$ : A  $1 \times 4$  matrix represented by a horizontal row of four white cells, each containing three dots ( $\dots$ ).
- $w$ : A  $4 \times 1$  column vector represented by a vertical column of four red cells.
- $b$ : A  $1 \times 1$  scalar represented by a single blue cell.
- $Y$ : A  $1 \times 1$  scalar represented by a single white cell containing three dots ( $\dots$ ).

The equation is shown as  $X \cdot w + b = Y$ , where the dot ( $\cdot$ ) represents matrix multiplication, the plus sign ( $+$ ) represents addition, and the equals sign ( $=$ ) represents equality.