

Powers of 10

To multiply a whole number by a power of 10, add on zeros at the end of the whole number.

- To multiply a whole number by 10, put one zero at the end of the number.

$$12 \times 10 = 12\underline{0}$$

- To multiply a whole number by 100, put two zeros at the end of the number.

$$12 \times 100 = 1,2\underline{00}$$

- To multiply a whole number by 1,000 put three zeros at the end of the number.

$$12 \times 1,000 = 12,000$$

Use a pattern

$$10^0 = 1$$

$$10^1 = 10$$

$$10^2 = 10 \times 10 = 100$$

$$10^3 = 100 \times 10 = 1,000$$

$$10^4 = 1,000 \times 10 = 10,000$$

$$10^5 = 10,000 \times 10 = 100,000$$

$$10^6 = 100,000 \times 10 = 1,000,000$$

Other examples:

- $180 \times 100 = 18,000$

- $104 \times 10^2 = 10,400$

- $166 \times 100,000 = 16,600,000$

- $14 \times 10^4 = 140,000$