## Work with numbers between 0 and 1 in standard form



Complete the statements.

a) 
$$0.007 = 7 \times \boxed{0.001} = 7 \times 10^{-3}$$

**b)** 
$$0.06 = 6 \times \boxed{0.01} = 6 \times 10^{-2}$$

d) 
$$0.0000004 = 4 \times 0.0000001 = 4 \times 10^{-7}$$

e) 
$$\frac{7}{10000} = 7 \times 0.0001 = 7 \times 10^{-4}$$

f) three thousandths = 
$$3 \times 0.001$$
 =  $3 \times 10^{-3}$ 

g) 2 millionths = 
$$2 \times 0.00000 \text{ J} = 2 \times 10^{-6}$$

Tick the numbers that are **not** in standard index form.

$$4 \times 10^{-27}$$

$$6 \times 10^{-\frac{3}{4}}$$

$$0.05 \times 10^{-2}$$

$$5.4 \times 10^{-6}$$

$$7 \times 10^{5}$$

Write >, < or = to complete the statements.

**a)** 0.0001

c)  $8 \times 10^{-2}$ 

Write the standard form numbers as ordinary numbers.

a) 
$$6 \times 10^{-3} = 0.006$$

**d)** 
$$5 \times 10^{-2} = 0.05$$

**b)** 
$$7 \times 10^{-4} = 0.0007$$

Fill in the missing information.

a) 
$$0.008 = 8 \times 0.001 = 8 \times 10^{-3}$$

**b)** 
$$0.009 = 9 \times 0.001 = \boxed{9} \times 10^{-3}$$

c) 
$$0.0085 = 8.5 \times 0.001 =$$
 8 · 5  $\times 10^{-3}$ 

**d)** 
$$0.0083 = 6.3 \times 0.001 = 6.3 \times 10^{-3}$$

e) 
$$0.027 = 2 \cdot 7 \times 0.01 = 2 \cdot 7 \times 10^{-2}$$

f) 
$$0.000062 = 6.2 \times 0.00001 = 6.2 \times 10^{-5}$$

g) 
$$0.67 = 6.7 \times 0.1 = 6.7 \times 10^{-1}$$

h) 
$$0.00000056 = 5.6 \times 0.0000000 ( = 5.6 \times 10^{-7})$$

Write the ordinary numbers in standard index form.

a) 
$$0.0004 = 4 \times 10^{-4}$$

a) 
$$0.0004 = 1 \times 10^{-4}$$
 d)  $0.002 = 2 \times 10^{-3}$ 

**b)** 
$$0.00043 = 4.3 \times 10^{-4}$$

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$$0.00043 = 4.3 \times 10^{-4}$$
 **e)**  $0.0021 = 2.1 \times 10^{-3}$ 

c) 
$$0.000437 = 6.37 \times 10^{-4}$$

f) 
$$0.00201 = \frac{2.01 \times 10^{-3}}{2.01 \times 10^{-3}}$$

- Write the standard form numbers as ordinary numbers.
  - a)  $3 \times 10^{-3} =$ 0.003
- d) 8.27 × 10<sup>-4</sup> = 0.000827
- **b)**  $3.1 \times 10^{-3} =$ 0.0031
- 0.0000827 e)  $8.27 \times 10^{-5} =$
- c)  $3.81 \times 10^{-3} =$ 0.00381
- f)  $8.207 \times 10^{-5} =$ 0.00008207
- a) The length of a plant cell is about 0.00005 m. Write this length in standard form.

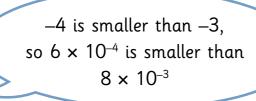
**b)** A blood cell is about  $8 \times 10^{-6}$  m long. Write this length as an ordinary number.

0.000008

c) The diameter of a proton is about 0.0000000000000087 m. Write this length in standard form.

8.7×10-16

a)



Do you agree with Jack? 45 Explain your answer.

$$6 \times 10^{-4} = 0.0006$$
  $8 \times 10^{-3} = 0.008$ 

**b)** Write the numbers in ascending order.

7 hundredths

 $7 \times 10^{-7}$ 

0.007

 $7.5 \times 10^{-2}$ 

0.017

 $6 \times 10^{-7}$ 

100000

0.00000667

 $6.6 \times 10^{-6}$ 

6 millionths





 $0.3 \times 10^{-4}$  is not in standard form.  $0.3 \times 10^{-4} = 3 \times 10^{-1} \times 10^{-4} = 3 \times 10^{-5}$ Now the number is in standard form.

Use Mo's reasoning to write these numbers in standard form.

a) 
$$0.7 \times 10^{-4} = \frac{7 \times 10^{-5}}{70 \times 10^{-4}} = \frac{7 \times 10^{-3}}{100^{-3}}$$

$$0.07 \times 10^{-4} = \frac{7 \times 10^{-6}}{}$$

c) 
$$53.8 \times 10^{-4} = \underline{5.38 \times 10^{-2}}$$
  
 $538 \times 10^{-4} = \underline{5.38 \times 10^{-2}}$   
 $0.0538 \times 10^{-4} = \underline{5.38 \times 10^{-6}}$ 

b) 
$$0.6 \times 10^{-3} = 6 \times 10^{-4}$$
  
 $0.06 \times 10^{-3} = 6 \times 10^{-5}$   
 $600 \times 10^{-3} = 6 \times 10^{-1}$ 

