

## How to Convert in Metric - Square Measure

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Square measure has a different dimension than linear measure. We need to consider this when converting in square measure.

### Square Measure Conversion

The metric system is based on the number ten. Square measures have two dimensions, so we double the conversion (i.e. ten times ten,  $10 \times 10 = 100$ ). So instead of progressing between units by tens as we did with linear measurement, we progress by hundreds.

The units are familiar, except a square hectometre is called a *hectare*.

square measure	square kilometre	hectare	square decametre	square metre	square decimetre	square centimetre	square millimetre
- area	km <sup>2</sup>	ha	dam <sup>2</sup>	m <sup>2</sup>	dm <sup>2</sup>	cm <sup>2</sup>	mm <sup>2</sup>
	1 000 000 m <sup>2</sup>	10 000 m <sup>2</sup>	100 m <sup>2</sup>	1 m <sup>2</sup>	0.01 m <sup>2</sup>	0.0001 m <sup>2</sup>	0.000001 m <sup>2</sup>

Converting between units in square measure is almost identical to linear measure.

How to convert 7.5 square metres into square millimetres.

1. We still remember "King Henry drunk milk during Christmas mass."

2. Make a chart.

km <sup>2</sup>	ha	dam <sup>2</sup>	m <sup>2</sup>	dm <sup>2</sup>	cm <sup>2</sup>	mm <sup>2</sup>
			7.5			_____

3. Write in the number you are converting. Make sure it is in the proper column.  
(e.g. put the 7.5 in the square metres column)

4. Put a line in the column you want to end up in.  
(e.g. put a line in the square millimetres column)

5. Count how many columns you need to move from the number to the line **and multiply it by two (two dimensions, remember?)**.

(e.g. from 7.5 to \_\_\_\_\_, there are 3 columns times 2 = 6)

-----> that is how many decimal places you move

(in our example, 6 decimal places)

6. Which direction did you move, left or right?

(e.g. to go from 7.5 to \_\_\_\_\_, we move to the right)

-----> that is the direction you move the decimal

(in our example, move it 6 decimal places to the right 75 .  
which is 7 500 000.

7. Write the answer on the line.

(e.g. you would write the answer on the line, 7 500 000)

8. The solution to our problem:  $7.5 \text{ m}^2 = 7\,500\,000 \text{ mm}^2$ .

Examples:

Convert the following: a.  $7 \text{ cm}^2 \rightarrow$  \_\_\_\_\_  $\text{dam}^2$       b.  $15 \text{ km}^2 \rightarrow$  \_\_\_\_\_  $\text{m}^2$   
 c.  $12.3 \text{ dm}^2 \rightarrow$  \_\_\_\_\_  $\text{ha}$       d.  $17.53 \text{ mm}^2 \rightarrow$  \_\_\_\_\_  $\text{cm}^2$

	$\text{km}^2$	$\text{ha}$	$\text{dam}^2$	$\text{m}^2$	$\text{dm}^2$	$\text{cm}^2$	$\text{mm}^2$
a.			_____			7	
b.	15			_____			
c.		_____			12.3		
d.						_____	17.53

You do the following for homework:

Question	$\text{km}^2$	$\text{ha}$	$\text{dam}^2$	$\text{m}^2$	$\text{dm}^2$	$\text{cm}^2$	$\text{mm}^2$
a. $25 \text{ km}^2 =$ ___ $\text{ha}$							
b. $317 \text{ km}^2 =$ ___ $\text{dam}^2$							
c. $4.1 \text{ ha} =$ ___ $\text{m}^2$							
d. $753 \text{ m}^2 =$ ___ $\text{dm}^2$							
e. $9.66 \text{ cm}^2 =$ ___ $\text{mm}^2$							
f. $12.7 \text{ dm}^2 =$ ___ $\text{mm}^2$							
g. $2057 \text{ mm}^2 =$ ___ $\text{cm}^2$							
h. $17\,399 \text{ cm}^2 =$ ___ $\text{m}^2$							
i. $57 \text{ m}^2 =$ ___ $\text{ha}$							
j. $73\,948 \text{ m}^2 =$ ___ $\text{km}^2$							
k. $13.79 \text{ dam}^2 =$ ___ $\text{dm}^2$							
l. $91 \text{ ha} =$ ___ $\text{m}^2$							