Converting Metric Units

Grade 5 Math • Section 8.3

Name: _____	Date: _____	Score: _____ / 14

Quick Review and Helpful Hints

Metric prefixes (each step is $\times 10$): kilo- $(1{,}000)$ $\rightarrow$ hecto- (100) $\rightarrow$ deka- (10) $\rightarrow$ **base unit** $\rightarrow$ deci- (0.1) $\rightarrow$ centi- (0.01) $\rightarrow$ milli- (0.001).

Common: 1 km $= 1{,}000$ m; 1 m $= 100$ cm $= 1{,}000$ mm; 1 kg $= 1{,}000$ g; 1 L $= 1{,}000$ mL.

Moving to a **smaller** unit $\rightarrow$ multiply (decimal moves right). Moving to a **larger** unit $\rightarrow$ divide (decimal moves left).

Example: Convert 5 cm to meters.

1 m $= 100$ cm, so divide by 100: $5 \div 100 = 0.05$ m.

Answer: 0.05 m

Practice Problems

Convert each measurement.

1. 3 km $=$ _____ m _____
2. 450 cm $=$ _____ m _____
3. $2{,}500$ mL $=$ _____ L _____
4. 7 kg $=$ _____ g _____
5. 60 mm $=$ _____ cm _____
6. 0.8 m $=$ _____ cm _____
7. 3.5 L $=$ _____ mL _____
8. $9{,}200$ g $=$ _____ kg _____
9. 1.2 km $=$ _____ m _____
10. 750 m $=$ _____ km _____
11. 4.6 kg $=$ _____ g _____
12. 85 cm $=$ _____ mm _____

Word Problems

13. A race is 5 km long. A runner has completed $3{,}200$ m. How many meters are left?

_____

14. A water bottle holds 750 mL. How many bottles are needed to fill a 3 L container?

_____

Answer Keys

1. $\boxed{3{,}000}$
2. $\boxed{4.5}$
3. $\boxed{2.5}$
4. $\boxed{7{,}000}$
5. $\boxed{6}$
6. $\boxed{80}$
7. $\boxed{3{,}500}$
8. $\boxed{9.2}$
9. $\boxed{1{,}200}$
10. $\boxed{0.75}$
11. $\boxed{4{,}600}$
12. $\boxed{850}$
13. $\boxed{1{,}800\text{ m}}$
14. $\boxed{4}$

Step-by-Step Explanations

1. Start with the main idea. For converting metric units, 3 km times $1{,}000$ m per km is $3{,}000$ m. Use the conversion fact first, then decide whether to multiply or divide.

2. Keep the work tidy. For converting metric units, $450 \div 100 = 4.5$ m. Moving from a larger unit to a smaller unit usually makes the number larger.

3. Look at what the numbers mean. For converting metric units, $2{,}500 \div 1{,}000 = 2.5$ L. Keep the unit label with the answer so the conversion is complete.

4. Use the setup first. For converting metric units, $7 \times 1{,}000 = 7{,}000$ g. Use the conversion fact first, then decide whether to multiply or divide.

5. Check the size of the answer. For converting metric units, $60 \div 10 = 6$ cm. Moving from a larger unit to a smaller unit usually makes the number larger.

6. Match the operation to the words. For converting metric units, $0.8 \times 100 = 80$ cm. Keep the unit label with the answer so the conversion is complete.

7. Write the important values first. For converting metric units, $3.5 \times 1{,}000 = 3{,}500$ mL. Use the conversion fact first, then decide whether to multiply or divide.

8. Follow the pattern carefully. For converting metric units, $9{,}200 \div 1{,}000 = 9.2$ kg. Moving from a larger unit to a smaller unit usually makes the number larger.

9. Start with the main idea. For converting metric units, $1.2 \times 1{,}000 = 1{,}200$ m. Keep the unit label with the answer so the conversion is complete.

10. Keep the work tidy. For converting metric units, $750 \div 1{,}000 = 0.75$ km. Use the conversion fact first, then decide whether to multiply or divide.

11. Look at what the numbers mean. For converting metric units, $4.6 \times 1{,}000 = 4{,}600$ g. Moving from a larger unit to a smaller unit usually makes the number larger.

12. Use the setup first. For converting metric units, $85 \times 10 = 850$ mm. Keep the unit label with the answer so the conversion is complete.

13. Check the size of the answer. For converting metric units, 5 km is $5{,}000$ m, and $5{,}000 - 3{,}200 = 1{,}800$ m. Use the conversion fact first, then decide whether to multiply or divide.

14. Match the operation to the words. For converting metric units, 3 L is $3{,}000$ mL; $3{,}000 \div 750 = 4$ bottles. Moving from a larger unit to a smaller unit usually makes the number larger.

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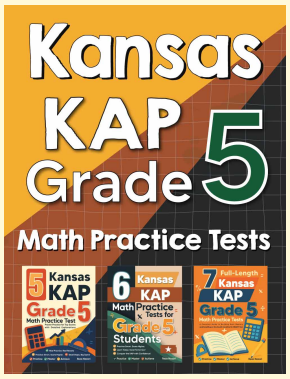

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