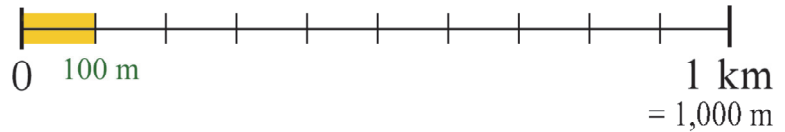


Using Decimals with Measuring Units

Since metric units are based on the number **ten**, it is easy to find one tenth (0.1) of any metric unit.

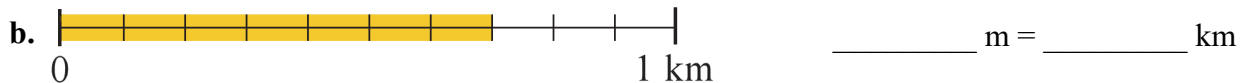
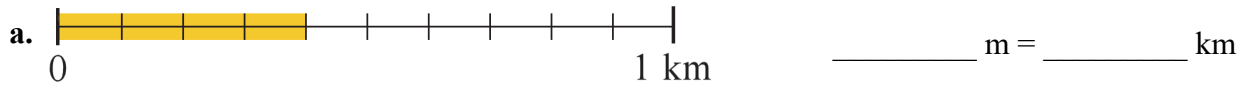
Distance

One kilometer is 1,000 meters.
The illustration shows 1 km divided into ten equal parts.
Each part is one-tenth of a kilometer, and is 100 meters.



Using decimals, we can write $0.1 \text{ km} = 100 \text{ m}$. Similarly, 0.8 km (8 tenths of a km) is 800 m.

1. Write the distance shown on the number line both in meters and in kilometers (using decimals).



2. Fill in the missing parts. The number lines above can help.

a. 500 m = _____ km	b. 900 m = _____ km	c. _____ m = 0.2 km
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3. Convert between the units. Use decimals when writing the distances in kilometers.

a. 0.6 km = _____ m	b. 700 m = _____ km	c. 10.9 km = _____ m
1.1 km = _____ m	1,800 m = _____ km	24,600 m = _____ km

4. Julie lives 1.2 km away from a college she goes to. Her friend Amanda lives only 300 m from the college. They both walk from home to the college and back each day.

- What distance does Amanda walk in one day, in *kilometers*?
- How many more *kilometers* does Julie walk than Amanda in a day?

5. Jack ran 2,040 meters, and Andrew ran 2.4 km.
Who ran a longer distance?

How much longer (in meters)?

Weight

1 kg is 1,000 g. If we divided that 1,000 g into ten parts, each part is 100 grams.

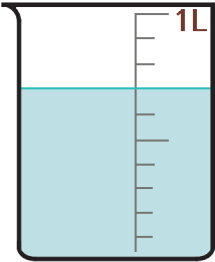
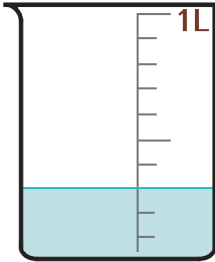
So, **one-tenth** or **0.1** of a kilogram is **100 g**.

Volume

1 liter is 1,000 ml. If we divide that 1,000 ml into ten parts, each part is 100 ml.

So, **0.1 L = 100 ml**.

6. In (a) and (b), write the amount of liquid in milliliters and in liters. In (c) and (d), convert between the units. Use decimals when writing the amounts in liters.

 <p>a. _____ ml _____ L</p>	 <p>b. _____ ml _____ L</p>	<p>c. 0.2 L = _____ ml 0.5 L = _____ ml 5.4 L = _____ ml</p> <p>d. 100 ml = _____ L 1,500 ml = _____ L 6,300 ml = _____ L</p>
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7. Convert between kilograms and grams.

<p>a. 600 g = _____ kg 2,400 g = _____ kg</p>	<p>b. 0.2 kg = _____ g 0.8 kg = _____ g</p>	<p>c. 20,500 g = _____ kg 7.1 kg = _____ g</p>
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8. You pour 0.3 L of juice out of a full 1-liter pitcher.

How much juice is left, in milliliters?

How much juice is left, in liters?

9. You have 8,500 ml of gasoline in a container. You pour gasoline out of that container into your lawn mower, which has a tank that holds 1.2 L. How much gasoline is left in the container now?



10. Jack's pet rabbit weighed 2.6 kg. Then it got sick and started losing weight at the rate of 50 g each day.

a. How much weight did the rabbit lose in a week? _____ g

b. What did the rabbit weigh after that?
(Hint: use grams.)