CHAPTER 11 Metric Length, Mass, and Volume

Lesson 11.1 Meters and Centimeters

Write in centimeters.

1. 6 m 80 cm = ________ cm
2. 5 m 43 cm = ________ cm
3. 8 m 6 cm = ________ cm
4. 12 m 35 cm = ________ cm
5. 15 m 7 cm = ________ cm
6. 28 m 12 cm = ________ cm

Write in meters and centimeters.

7. 185 cm = ________ m ________ cm
8. 312 cm = ________ m ________ cm
9. 708 cm = ________ m ________ cm
10. 936 cm = ________ m ________ cm
11. 1,203 cm = ________ m ________ cm

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Read the description. Write the name and height of each student.
Then fill in the blanks.

12. 

Mary: 1 meter 52 centimeters
Lucy: 137 centimeters
Eric: 143 centimeters
Ken: 1 meter 60 centimeters

13. ___________ is the tallest.

14. ___________ is the shortest.

15. Mary is ___________ centimeters taller than Eric.
Lesson 11.2  Kilometers and Meters

Write in meters.

1. 8 km = ________ m
2. 4 km 350 m = ________ m
3. 7 km 900 m = ________ m
4. 5 km 10 m = ________ m
5. 2 km 95 m = ________ m
6. 7 km 9 m = ________ m
7. 3 km 5 m = ________ m

Write in kilometers and meters.

8. 5,000 m = ________ km
9. 6,340 m = ________ km ________ m
10. 1,896 m = ________ km ________ m
11. 2,065 m = ________ km ________ m
12. 7,080 m = ________ km ________ m
13. 4,002 m = ________ km ________ m
14. 2,008 m = ________ km ________ m
Look at the map. Then fill in the blanks.

15. Point A is _______ kilometers _______ meters from Point B.
16. Point B is _______ kilometers _______ meters from Point C.
17. Point C is _______ meters from Point D.
18. Point D is _______ meters from Point E.
19. Point E is _______ meters from Point F.

1 km = 1,000 m
Look at the map. Then fill in the blanks.

20. The distance between Jason’s house and Madison Park is _______ meters.

21. Jason travels _______ meters from his house to Oakland Zoo.

22. The distance between Oakland Zoo and the Science Center is _______ kilometers _______ meters.

23. Jason’s house is _______ kilometers _______ meters away from the National Museum.
Read the story. Complete the map. Then check (√) the correct statement.

The library is 2 kilometers 350 meters from May's house. She cycles to the library every Saturday morning. Then, she goes to the mall to have lunch. The mall is 600 meters from the library.

After lunch, May cycles to a park that is 1 kilometer 65 meters from the mall. In the evening, she cycles 1,800 meters home from the park.

24. The library is nearer to May's house than the park is.

25. The distance from the park to May's house is farther than the distance from the park to the mall.

26. The mall is nearer to the park than to the library.
Lesson 11.3 Kilograms and Grams
Read the scales. Write the mass.

1. __________ g

2. __________ kg __________ g

3. __________ kg __________ g

4. __________ kg __________ g
Write in grams.

5. 6 kg = _______ g
6. 3 kg 438 g = _______ g
7. 8 kg 260 g = _______ g
8. 2 kg 370 g = _______ g
9. 4 kg 50 g = _______ g
10. 5 kg 90 g = _______ g
11. 7 kg 5 g = _______ g
12. 9 kg 8 g = _______ g

Write in kilograms and grams.

13. 3,000 g = _______ kg
14. 2,850 g = _______ kg _______ g
15. 5,643 g = _______ kg _______ g
16. 1,865 g = _______ kg _______ g
17. 3,080 g = _______ kg _______ g
18. 7,055 g = _______ kg _______ g
19. 8,005 g = _______ kg _______ g
20. 9,018 g = _______ kg _______ g

1 kg = 1,000 g
Look at the pictures. The mass of each item is listed on its packaging. Then complete the table and fill in the blanks for Exercises 21 to 25.

<table>
<thead>
<tr>
<th>cheese</th>
<th>baked beans</th>
<th>rice</th>
<th>peaches</th>
<th>detergent</th>
<th>veggie chips</th>
<th>cereal</th>
<th>milk formula</th>
<th>crabs</th>
<th>cherries</th>
</tr>
</thead>
</table>

21. | Less than 500 g | More than 500 g but less than 1 kg | From 1 kg to 1 kg 500 g | More than 1 kg 500 g |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cheese</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use the table on the previous page to complete the statements.

22. The __________ is the lightest.

23. The __________ is the heaviest.

24. ________ items are lighter than a jar of cherries.

25. ________ items are heavier than a bag of crabs.

Complete.

26. Order the masses from heaviest to lightest.

[Images of three bags with masses: 2 kg 300 g, 3,450 g, 1,280 g]

heaviest

...
Lesson 11.4  Liters and Milliliters

Find the volume of water in each measuring cup.

1.  

   \[ \begin{array}{c}
   \text{100 mL} \\
   \text{50 mL}
   \end{array} \]

   ______ mL

2.  

   \[ \begin{array}{c}
   \text{500 mL} \\
   \text{400 mL} \\
   \text{300 mL} \\
   \text{200 mL} \\
   \text{100 mL}
   \end{array} \]

   ______ mL

3.  

   \[ \begin{array}{c}
   1 \text{ L} \\
   \text{500 mL}
   \end{array} \]

   ______ mL

4.  

   \[ \begin{array}{c}
   1 \text{ L} \\
   \text{500 mL}
   \end{array} \]

   ______ mL

Find the capacity of each container.

5.  

   The capacity of the pot is _______ liters _______ milliliters.
6. The capacity of the kettle is _______ liter _______ milliliters.

Write in milliliters.

7. 3 L 250 mL = _______ mL

8. 4 L 600 mL = _______ mL

9. 2 L 80 mL = _______ mL

10. 6 L 70 mL = _______ mL

11. 1 L 9 mL = _______ mL

12. 5 L 6 mL = _______ mL

Write in liters and milliliters.

13. 1,800 mL = _______ L _______ mL

14. 2,130 mL = _______ L _______ mL

15. 3,550 mL = _______ L _______ mL

16. 4,090 mL = _______ L _______ mL

17. 6,000 mL = _______ L _______ mL

18. 5,008 mL = _______ L _______ mL
Use the clues to answer Exercises 19 and 20.

**CLUES**
Container F has the largest capacity.
Container E has the smallest capacity.
Container A has a larger capacity than Container C.
Container B has a smaller capacity than Container D but a larger capacity than Container A.

**Match.**

19.

- **A**
  - Olive Oil
  - 750 mL

- **B**
  - Fruit Juice
  - 3 L

- **C**
  - Mineral Water
  - 1 L 500 mL

- **D**
  - Kettle
  - 150 mL

- **E**
  - Ketchup
  - 2 L 500 mL

- **F**
  - Thermos
  - 500 mL
Order the containers by capacity from smallest to largest.

20. smallest
   ______________________
   ______________________
   ______________________
   ______________________
largest ______________________

Fill in the blanks with more than, less than, or equal to.

21. 2 L 360 mL is _______________ 2,360 mL.
22. 4 L 400 mL is _______________ 4,040 mL.
23. 7 L 362 mL is _______________ 7,632 mL.
24. 8 L 5 mL is _______________ 8,050 mL.
25. 9,389 mL is _______________ 9 L 389 mL.
26. 10 L 580 mL is _______________ 10 L 508 mL.
Put on Your Thinking Cap!

Complete.

The picture shows the distance traveled by each robot.

1. Robot C moves ________ centimeters more than Robot A.
2. Robot A moves ________ centimeters less than Robot B.
3. Robot ________ moves the longest distance.
4. Robot ________ moves the shortest distance.
5. The difference between the shortest distance and the longest distance is ________ centimeters.
Look at the picture. Then complete Exercises 6 to 9.

6. John lives in Yellow County.
   He travels _______ fewer meters to Phoenix High School
   than to the shopping mall.

7. The _____________ is the farthest place from Yellow County.

8. The _____________ is the nearest place to Yellow County.

9. The difference between the longest and shortest distances from
   Yellow County is _______ meters.