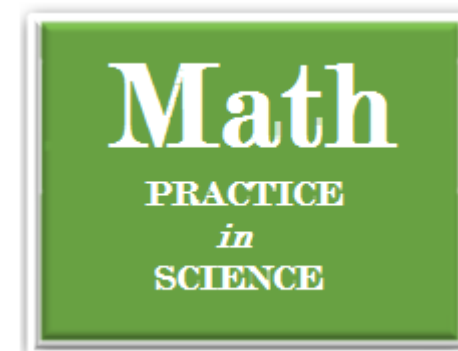# 083 Math Practice
Measuring with Metrics

The measurements we have used so far are part of a system called *English*, or *customary*, measurement. There is also another system that we can use. It is called the *metric* system. Sometimes it is easier to work with the metric system because it is based on powers of 10.

Look at this drawing of a metric ruler. Each numbered spaces is one centimeter. Each little space is one millimeter. You can count the little spaces to see that 10 millimeters are in 1 centimeter.

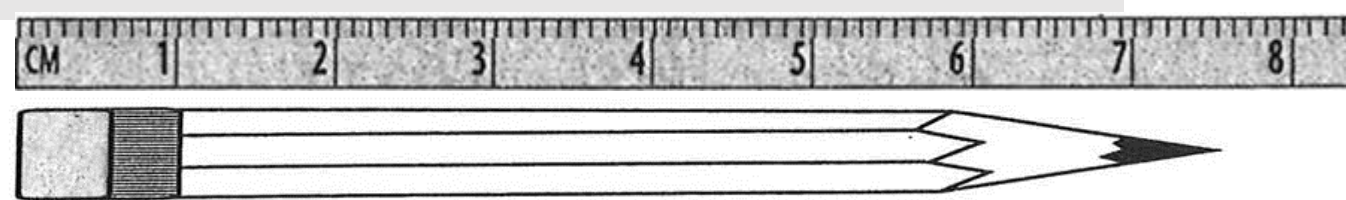*Example:*   Measure the length of this pencil to the nearest centimeter and to the nearest millimeter.
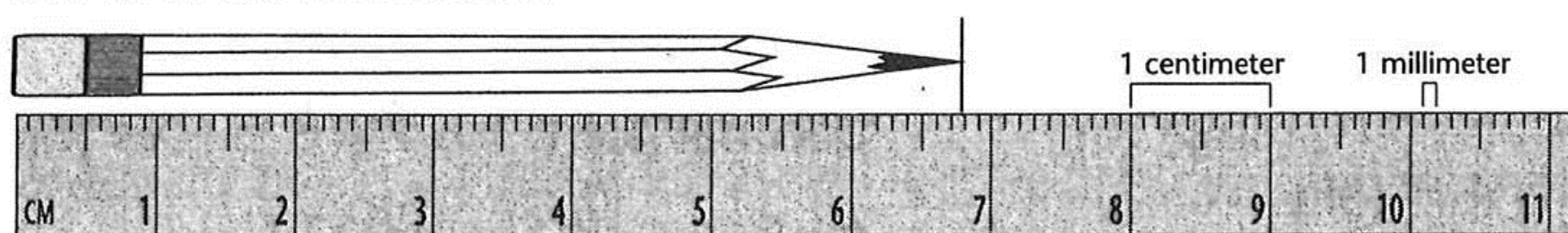
The length to the nearest centimeter is 7 centimeters, or 7 cm.
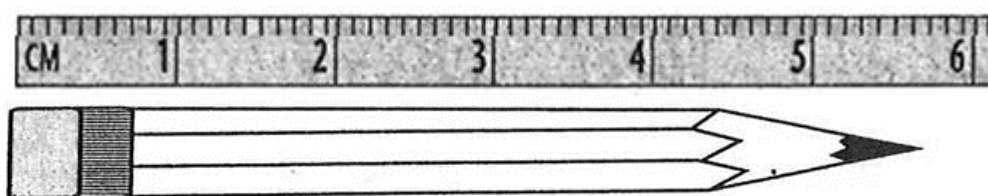The length to the nearest millimeter is 68 millimeters, or 68 mm.

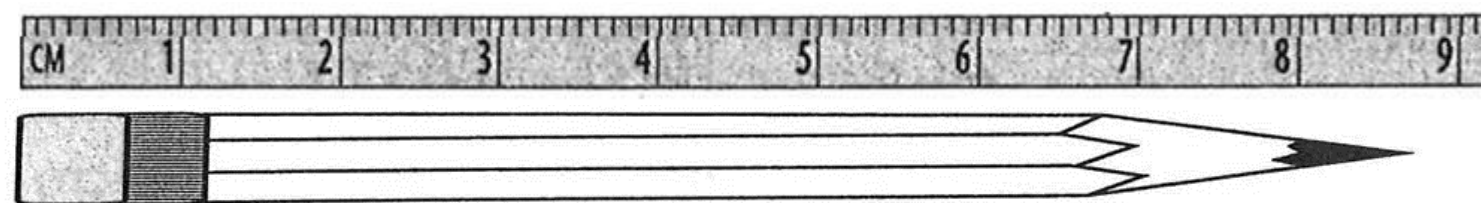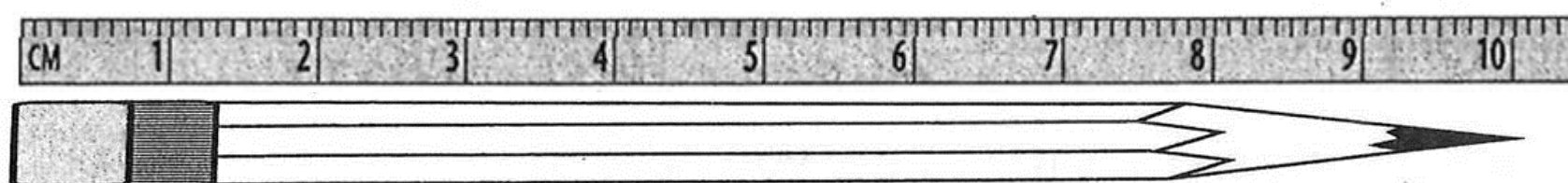**Use a centimeter ruler. Measure the length of each pencil to the nearest centimeter and nearest millimeter.**
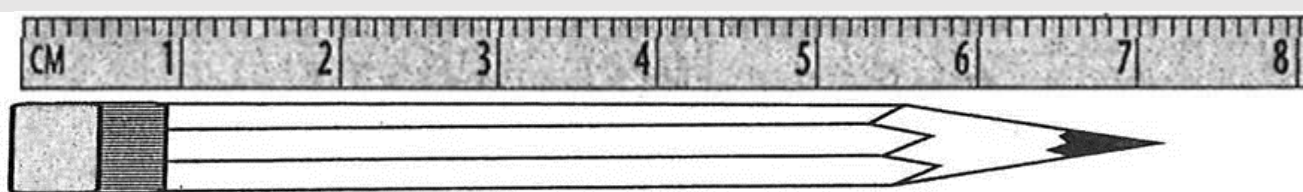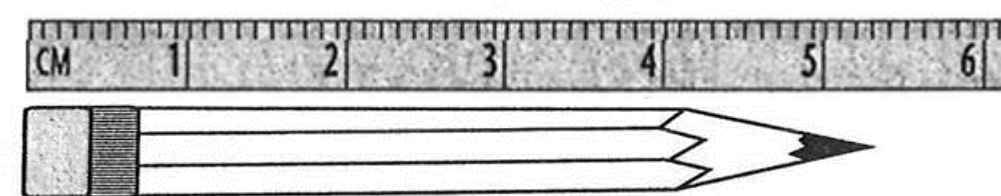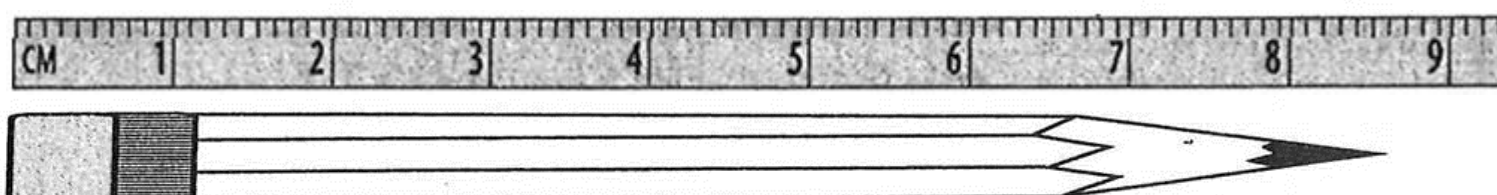
1. _____   2. _____
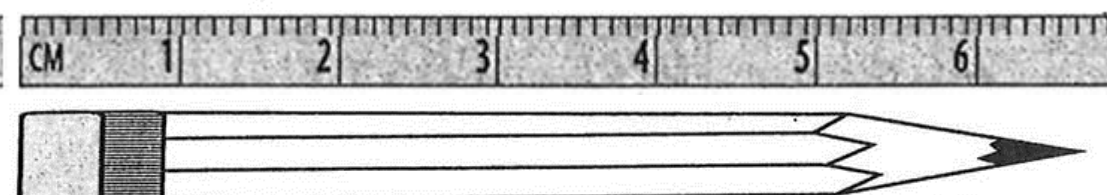
3. _____   4. _____
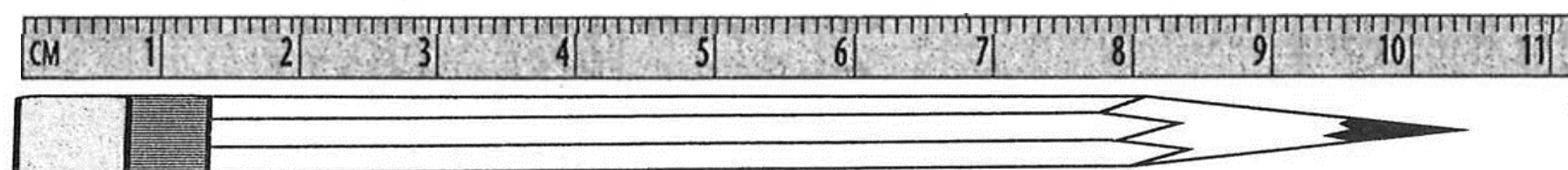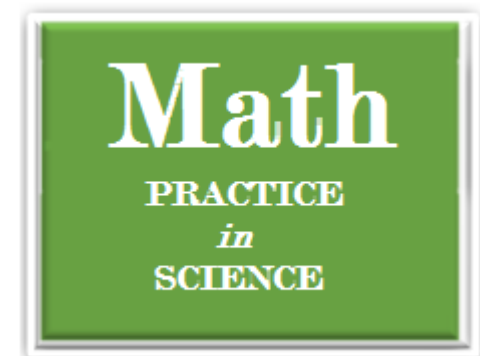
5. _____   6. _____

7. _____   8. _____

9. _____

084 Math Practice
Changing Metric Measurements

When you convert metric measurements from one unit to the other, you multiply or divide by 10, 100, 1,000 and so on. Since these are all powers of ten, you can think of moving the decimal point to the right or left instead of actually multiplying or dividing.

Use this diagram to help you change from one unit to another.

	3		2		1	
km	⟷	m	⟷	cm	⟷	mm
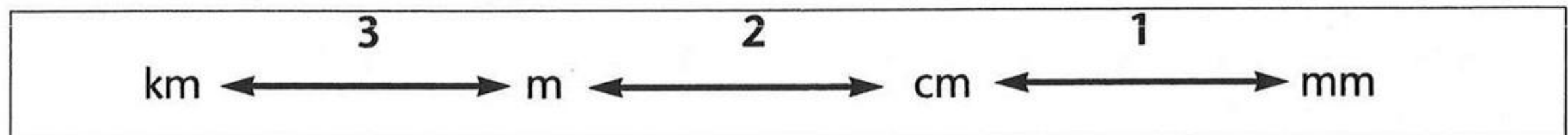
Larger unit to smaller unit

Multiply by moving the decimal point to the right.

Example:
To change meters to centimeters, move the decimal point 2 places to the right.

5.2 m = 5.20 = 520 cm

Smaller unit to larger unit

Divide by moving the decimal point to the left.

Example:
To change millimeters to meters, move the decimal point 1 + 2 = 3 places to the left.

63 mm = 063. = .063 m

Fill in the missing numbers.

1. 48 mm = _____ cm
2. 25 m = _____ cm
3. 6 km = _____ m
4. 25 cm = _____ mm
5. 5.2 cm = _____ mm
6. 4200 mm = _____ km
7. 7 m = _____ cm
8. 4.5 m = _____ cm
9. 420 mm = _____ m
10. .042 km = _____ cm
11. 3.07 m = _____ mm
12. 45.3 cm = _____ mm
13. .007 m = _____ mm
14. 25,000 cm = _____ km
15. 4600 m = _____ km
16. .042 cm = _____ mm
17. 24 mm = _____ cm
18. .048 m = _____ mm
19. 650 mm = _____ m
20. 720 mm = _____ cm
21. .6 km = _____ m

You can add only like units. If the units are not the same, you have to convert them before adding.

22. 16 cm + 23 cm = _____ cm
23. 12 cm + 43 mm + 36 cm = _____ cm
24. 6 cm + 42 mm = _____ mm
25. 4.7 cm + 28 mm + 52 cm = _____ mm
26. 28 mm + 7.3 cm = _____ cm
27. 9.3 cm + 6 m + 4 mm = _____ cm
28. 72 cm + 4 m = _____ cm
29. 5 mm + 8 cm + 3 m = _____ cm
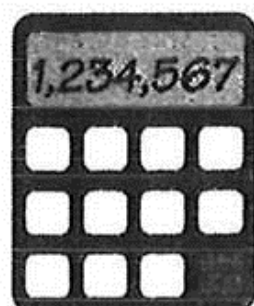
George rode his bicycle 2,000 meters to school and 2.9 kilometers to the library. Gina rode 4,800 meters to the recreation center. Who rode the shorter distance?

_____