Name _____ Date _____

1. Convert and write an equation with an exponent. Use your meter strip when it helps you.

a.	2 meters to centimeters	2m = 200 cm	$2 \times 10^2 = 200$
b.	108 centimeters to meters	108 cm = 1.08 m	$108 \div 10^2 = 1.08$
c.	2.49 meters to centimeters	2.49 m = 249 cm	$2.49 \times 10^2 = 249$
d.	50 centimeters to meters	50 cm = 0.5 m	$50 \div 10^2 = 0.5$
e.	6.3 meters to centimeters	6.3 m = 630 cm	$6.3 \times 10^2 = 630$
f.	7 centimeters to meters	7 cm = 0.07 m	$7 \div 10^2 = 0.07$

g. In the space below, list the letters of the problems where smaller units are converted to larger units.

(b), (d), (f)

2. Convert using an equation with an exponent. Use your meter strip when it helps you.

a.	4 meters to millimeters	4 m = 4000 mm	$4 \times 10^3 = 4000$
b.	1.7 meters to millimeters	1.7 m = 1700 mm	$1.7 \times 10^3 = 1700$
c.	1,050 millimeters to meters	1,050 mm = 1.05 m	$1{,}050 \div 10^3 = 1.05$
d.	65 millimeters to meters	65 mm = 0.065 m	$65 \div 10^3 = 0.065$
e.	4.92 meters to millimeters	4.92 m = 4920 mm	$4.92 \times 10^3 = 4920$
f.	3 millimeters to meters	3 mm = 0.003 m	$3 \div 10^3 = 0.003$

g. In the space below, list the letters of the problems where larger units are converted to smaller units.

(a), (b), (e)

3. Read each aloud as you write the equivalent measures. Write an equation with an exponent you might use to convert.

a. 2.638 m = 2,638 mm — $2.638 \times 10^3 = 2{,}638$

b. 7 cm = 0.07 m — $7 \div 10^2 = 0.07$

c. 39 mm = 0.039 m — $39 \div 10^3 = 0.039$

d. 0.08 m = 80 mm — $0.08 \times 10^3 = 80$

e. 0.005 m = 0.5 cm — $0.005 \times 10^2 = 0.5$

4. Yi Ting's height is 1.49 m. Express this measurement in millimeters. Explain your thinking. Include an equation with an exponent in your explanation.

1.49 m = 1490 mm $1.49 \times 10^3 = 1490$

Since 1 meter has 1,000 mm, we multiply 1.49 by 1,000 to get the number of millimeters. This is written as $1.49 \times 10^3 = 1490$.

5. A ladybug's length measures 2 cm. Express this measurement in meters. Explain your thinking. Include an equation with an exponent in your explanation.

2 cm = 0.02 m

$2 \div 10^2 = 0.02$

Since 1 meter has 100 cm, to convert 2 cm we need to divide by 100. This is written as $2 \div 10^2 = 0.02$.

6. The length of a sticky note measures 77 millimeters. Express this length in meters. Explain your thinking. Include an equation with an exponent in your explanation.

77 mm = _____ m

$77 \div 10^3 = 0.077$

There are 1000 mm in 1 meter. To convert 77 mm we need to divide by 1000. This is written as $77 \div 10^3 = 0.077$.