

## Extra Practice Questions for Measurement

### Lesson 1: Measuring Length

Copy and complete. Use a ruler to help you.

1. a)  $9 \text{ cm} = \underline{90} \text{ mm}$

2. a)  $70 \text{ mm} = \underline{7} \text{ cm}$

3. a)  $3000 \text{ mm} = \underline{3} \text{ m}$

4. a)  $4 \text{ m} = \underline{4000} \text{ mm}$

b)  $40 \text{ cm} = \underline{400} \text{ mm}$

b)  $50 \text{ mm} = \underline{5} \text{ cm}$

b)  $8000 \text{ mm} = \underline{8} \text{ m}$

b)  $7 \text{ m} = \underline{7000} \text{ mm}$



5. Which unit would you use to measure each item?

- a) the length of a paperclip millimetres
- b) the width of a book centimetre
- c) the height of a tall tree metre
- d) the thickness of a penny millimetre

6. Use  $>$ ,  $<$ , or  $=$  Look at a ruler to help you if you need it!

a)  $7 \text{ cm} \equiv 70 \text{ mm}$

b)  $140 \text{ mm} > 11 \text{ cm}$

c)  $80 \text{ mm} < 9 \text{ cm}$

d)  $24 \text{ mm} \equiv 2.4 \text{ cm}$

### Lesson 3: Exploring Rectangles with Equal Perimeters

$$P = L + L + W + W$$

1. Write all possible rectangles with each perimeter. Make sure you draw the chart!

Example: 14 cm

	L	L	W	W
14	1	1	6	6
	2	2	5	5
	3	3	4	4

$1+1+6+6=14 \text{ cm}$   
 $2+2+5+5=14 \text{ cm}$   
 $3+3+4+4=14 \text{ cm}$

A) 8 cm

	L	L	W	W
8	1	1	3	3
	2	2	2	2

B) 18 cm

	L	L	W	W
18	1	1	8	8
	2	2	7	7
	3	3	6	6
	4	4	5	5

2. Write a rectangle with each perimeter and area.

Example: perimeter 24 cm and area 32 cm<sup>2</sup>

A	L	W
32	1	32
	2	16
	3	X
	4	8
	5	X
	6	X
	7	X

$$P = L + L + W + W$$

$$1 + 1 + 32 + 32 = 66 \text{ cm}$$

$$2 + 2 + 16 + 16 = 36 \text{ cm}$$

$$4 + 4 + 8 + 8 = 24 \text{ cm.}$$

$$A = L \times W$$

$$P = L + L + W + W$$

$$4 \times 8 = 32 \text{ cm}^2$$

$$4 + 4 + 8 + 8 = 24 \text{ cm}$$

b) perimeter 22 cm and area 18 cm<sup>2</sup>

A	L	W
18	1	18
	2	9
	3	6
	4	X
	5	X
	Stop. 6 repeats	

$$P = L + L + W + W$$

$$1 + 1 + 18 + 18 = 48 \text{ cm}$$

$$2 + 2 + 9 + 9 = 22 \text{ cm}$$

$$3 + 3 + 6 + 6 = 18 \text{ cm}$$

$$2 \times 9 = 18 \text{ cm}^2$$

$$2 + 2 + 9 + 9 = 22 \text{ cm}$$

c) perimeter 22 cm and area 28 cm<sup>2</sup>

A	L	W
28	1	28
	2	14
	3	X
	4	7
	5	X
	6	X
	Stop.	

$$P = L + L + W + W$$

$$1 + 1 + 28 + 28 = 58 \text{ cm}$$

$$2 + 2 + 14 + 14 = 32 \text{ cm}$$

$$4 + 4 + 7 + 7 = 22 \text{ cm}$$

$$4 \times 7 = 28 \text{ cm}^2$$

$$4 + 4 + 7 + 7 = 22 \text{ cm}$$

4. Justin has 48 m of fencing (perimeter) to put around his garden.

a) List all the possible lengths and widths of Justin's garden.

	L	L	W	W
48	1	1	23	23
	2	2	22	22
	3	3	21	21
	4	4	20	20
	5	5	19	19
	6	6	18	18
	7	7	17	17
	8	8	16	16
	9	9	15	15
	10	10	14	14
	11	11	13	13
	12	12	12	12

$$23 + 1 = 24 \quad | \quad 1 + 1 = 2 \quad 48 - 2 = 46 \div 2 = 23$$

$$23 \times 23 = 23 \text{ cm}^2 \quad | \quad 2 + 2 = 4 \quad 48 - 4 = 44 \div 2 = 22$$

$$46 \div 2 = 23$$

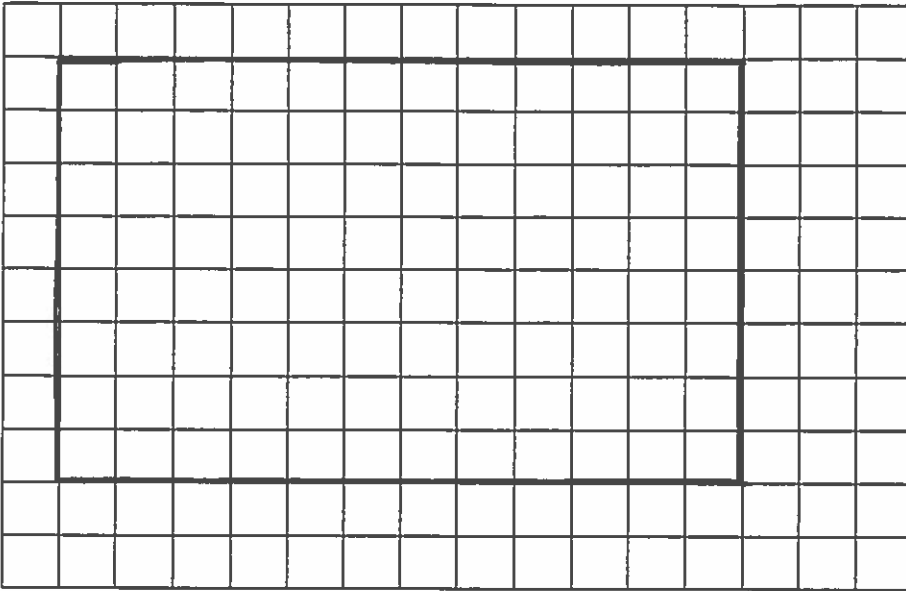
~~12 x 12 = 144 cm<sup>2</sup>~~

b) Which dimensions will Justin choose if he wants the garden with the greatest possible area? The least possible area?

Greatest:  
12 x 12

Least:  
23 x 1

Name: \_\_\_\_\_



5.a) Draw a rectangle 12 cm long and 8 cm wide.

USE YOUR RULER!!!

Remember to also write the units.

b) What is the perimeter of the rectangle?

$$12 + 12 + 8 + 8 = 40 \text{ cm}$$

c) What is the area of the rectangle?

$$12 \times 8 = 96 \text{ cm}^2$$

### Lesson 4: Exploring Rectangles with Equal Areas

$$A = L \times W$$

1. Write the dimensions of each rectangles with each area and perimeter.

a) area 24 cm<sup>2</sup> and perimeter 28 cm

A	L	W
24	1	24
	2	12
	3	8
	4	6
	5	X
stop		

$$P = L + L + W + W$$

$$1 + 1 + 24 + 24 = 50 \text{ cm}$$

$$2 + 2 + 12 + 12 = 28 \text{ cm}$$

$$3 + 3 + 8 + 8 = 22 \text{ cm}$$

$$4 + 4 + 6 + 6 = 20 \text{ cm}$$

$$2 \times 12 = 24 \text{ cm}^2$$

$$2 + 2 + 12 + 12 = 28 \text{ cm}$$

b) area 16 cm<sup>2</sup> and perimeter 16 cm

A	L	W
16	1	16
	2	8
	3	X
	4	4
stop		

$$P = L + L + W + W$$

$$1 + 1 + 16 + 16 = 34 \text{ cm}$$

$$2 + 2 + 8 + 8 = 20 \text{ cm}$$

$$4 + 4 + 4 + 4 = 16 \text{ cm}$$

$$4 \times 4 = 16 \text{ cm}^2$$

$$4 + 4 + 4 + 4 = 16 \text{ cm}$$

2. Draw all the possible rectangles with each area.

Example) 12 cm<sup>2</sup>

A	L	W
12	1	12
	2	6
	3	4
stop		

a) 36 cm<sup>2</sup>

A	L	W
36	1	36
	2	18
	3	12
	4	9
	5	X
	6	6
stop		

6. Amelia and Olivia made a rectangular garden with an area of  $24 \text{ m}^2$ .

**Example)** Find the dimensions of all the possible rectangles and record the perimeter of each garden they can make.

A	L	W	$L+L+W+W=P$
24	1	24	$1+1+24+24 = 50\text{cm}$
	2	12	$2+2+12+12 = 28\text{cm}$
	3	8	$3+3+8+8 = 22\text{cm}$
	4	6	$4+4+6+6 = 16\text{cm}$
	5	x	
	Stop		

7. Jasper and Kyle want to make a rectangular garden with an area of  $60 \text{ m}^2$ .

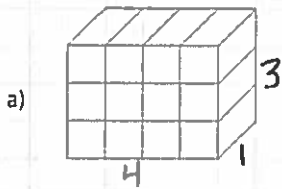
A) Find the dimensions of all the possible rectangles and record the perimeter of each garden they can make.

A	L	W	$P=L+L+W+W$
60	1	60	$1+1+60+60 = 122\text{m}$
	2	30	$2+2+30+30 = 64\text{m}$
	3	20	$3+3+20+20 = 46\text{m}$
	4	15	$4+4+15+15 = 38\text{m}$
	5	12	$5+5+12+12 = 34\text{m}$
	6	10	$6+6+10+10 = 32\text{m}$
	7	x	
	8	x	
	9	x	
	Stop		

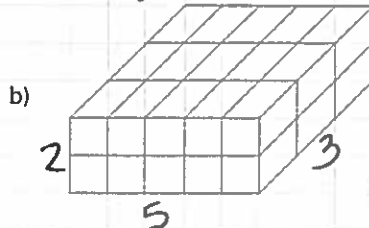
**Lesson 6: Measuring Volume in Cubic Centimetres  $V=L \times W \times H$**

1. Find the volume of each rectangular prism.

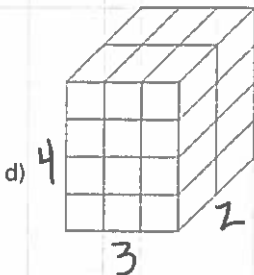
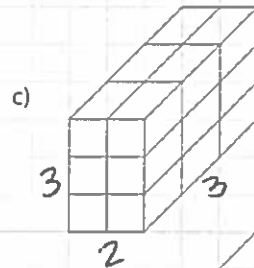
$1 \times 4 \times 3 = 12\text{cm}^3$



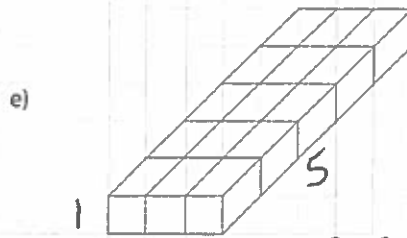
$2 \times 5 \times 3 = 30\text{cm}^3$



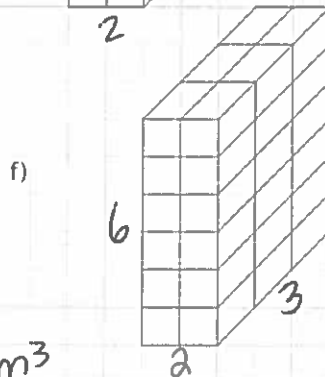
$3 \times 3 \times 2 = 18\text{cm}^3$



$4 \times 3 \times 2 = 24\text{cm}^3$



$1 \times 3 \times 5 = 15\text{cm}^3$



$6 \times 2 \times 3 = 36\text{cm}^3$

A)  $12\text{cm}^3$

B)  $30\text{cm}^3$

C)  $18\text{cm}^3$

D)  $24\text{cm}^3$

E)  $15\text{cm}^3$

F)  $36\text{cm}^3$

Name: \_\_\_\_\_

2. Lane and Jaxon have a box with a volume of  $16 \text{ cm}^3$ . The box is 4 cm tall.

a) How long and how wide might Lane and Jaxon's box be?  $V = L \times W \times H$

Give as many answers as possible.

$$H \times L \times W = \text{Volume}$$

$$4 \times L \times W = 16 \text{ cm}^3$$

$$16 \div 4 = 4 \begin{cases} L=2 \\ W=2 \end{cases}$$

$$16 \div 4 = 4 \begin{cases} L=4 \\ W=1 \end{cases}$$



$$16 = 4 \times 4 \times 1$$

$$16 = 4 \times 2 \times 2$$

### Lesson 7: Constructing Rectangular Prisms with a Given Volume

1. Build a rectangular prism with each set of dimensions shown in the table. Find the volume of each prism.

Length (cm)	Width (cm)	Height (cm)	Volume (cm <sup>3</sup> )
3	4	2	24
8	2	1	16
4	5	2	40
6	3	2	36

2. Write all the possible rectangular prism dimensions with a volume of  $18 \text{ cm}^3$ .

18

1 x 18

- 1 x 2 x 9
- 1 x 1 x 18
- 1 x 3 x 6

2 x 9

$$2 \times 3 \times 3$$

3 x 6

~~3 x 3 x 3~~

Name: \_\_\_\_\_

3. Suppose Anthony and Matthew wanted to build a rectangular prism with 35 centimetre cubes.

They put 7 cubes in the bottom layer.



a) How many layers of cubes will Anthony and Matthew need?

5 layers.

b) What are the dimensions of the prism?

$5 \times 7 \times 1$

### Lesson 9: Exploring Capacity: The Litre

1. Choose the better estimate.

- a) a jug of orange juice      4 L or 40 L
- b) a wading pool              2 L or 200 L
- c) a pail                         10 L or 100 L
- d) a bottle of ketchup        1 L or 10 L

### Lesson 10: Exploring Capacity: The Millilitre

1. Choose the better estimate.

- a) an eyedropper              1 mL or 200 mL
- b) a teacup                      25 mL or 250 mL
- c) a bottle of shampoo        75 mL or 750 mL
- d) a water bottle for a gerbil 6 mL or 250 mL

2. Would you use millilitres or litres to measure each container? Circle the answer.

- a) a teaspoon                  mL or L
- b) a drinking glass            mL or L
- c) a vinegar jug                mL or L
- d) an aquarium                mL or L
- e) a soup bowl                 mL or L
- f) a drink box                  mL or L

3. Order from least to greatest capacity.

a) <sup>2000mL</sup> 2 L, 1000 mL, 40 mL, 750 mL      40mL, 750mL, 1000mL, 2000mL

b) <sup>5000</sup> 76 mL, 14 mL, 5 L, <sup>17000</sup> 17 mL, 17 L      14mL, 17mL, 76mL, <sup>5000mL</sup> or 5L, <sup>17000mL</sup> or 17L

$$\begin{array}{c} 1000 \\ \text{mL} - \text{L} \end{array}$$

Name: \_\_\_\_\_

4. Copy and complete.

a)  $3 \text{ L} = \underline{3000} \text{ mL}$

b)  $7 \text{ L} = \underline{7000} \text{ mL}$

c)  $10 \text{ L} = \underline{10000} \text{ mL}$

d)  $2000 \text{ mL} = \underline{2} \text{ L}$

e)  $9000 \text{ mL} = \underline{9} \text{ L}$

f)  $1000 \text{ mL} = \underline{1} \text{ L}$

5. Abby drank 375 mL of water from her 1-L bottle. How much water is left in Abby's bottle?

$$\begin{array}{r} 1000 \\ - 375 \\ \hline 625 \end{array}$$

Abby has 625 mL left.

6. Natalie and Grace are making juice. They poured 680 mL of juice into a 1-L jug. How many more millilitres will their jug hold?

$$\begin{array}{r} 1000 \\ - 680 \\ \hline 320 \end{array}$$

Their jug will hold 320 mL

### Lesson 11: Relating Capacity and Volume

Makayla has a graduated cylinder that holds 1 litre. She would like to measure the volume of 10 marbles. The left cylinder shows the amount of water in the cylinder before she added the marbles while the right shows the amount after she added the marbles. What is the volume of 10 marbles, 5 marbles, and 1 marble?

10 marbles:  $31 \text{ cm}^3$

5 marbles:  $15.5 \text{ cm}^3$

1 marble:  $3.1 \text{ cm}^3$

$$38 - 7 = 31 \text{ mL}$$

$$31 \text{ mL} = 31 \text{ cm}^3 \quad 10 \text{ marbles}$$

$$31 \div 10 = 3.1 = 1 \text{ marble}$$

$$3.1 \times 5 = 15.5 = 5 \text{ marbles.}$$

