

## Math 2 Classwork 18

### Warm Up

1

Write expressions and find the values:

- 45 is 29 more than what number? \_\_\_\_\_
- What is the result of adding 8 twos together? \_\_\_\_\_
- What is the result of multiplying 4 threes? \_\_\_\_\_
- The product of 9 and 2 is 8 less than the number. What is that number? \_\_\_\_\_

2

Fill in the numbers:

$$6 \times 8 = ( \quad ) \times 4 = 3 \times ( \quad ) \qquad 5 \times 8 = ( \quad ) \times 4 = 2 \times ( \quad )$$

$$3 \times 10 = ( \quad ) \times 6 = 2 \times ( \quad ) \qquad 6 \times 6 = ( \quad ) \times 4 = 3 \times ( \quad )$$

3

Insert the correct arithmetic operation signs (underline the equations where two different operations might be inserted and result still will remain the same):

$$324 \square 324 = 0 \qquad 408 \square 0 = 408 \qquad 528 \square 1 = 527$$

$$222 \square 0 = 0 \qquad 654 \square 1 = 655 \qquad 657 \square 1 = 657$$

4

Listen the dictation, write down and calculate:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

### Homework Review

5

Open parentheses and try to calculate. *HINT: if you do everything correctly, the answer will be just one letter!*

$$(a + b + c) - (c - d - e - f - g) - (a + b) - (e + d + f + g) + a =$$

$$= \underline{\hspace{2cm}}$$

6

Insert the numbers (different from the numbers already written) to make the equations correct:

$$3 \times 6 = \underline{\quad} \times \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = 9 \times 4$$

$$6 \times 2 = \underline{\quad} \times \underline{\quad}$$

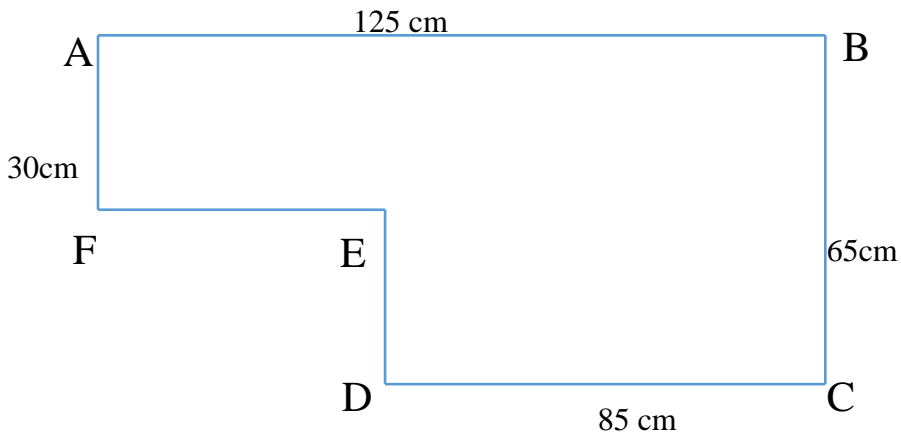
$$\underline{\quad} \times \underline{\quad} = 3 \times 8$$

$$4 \times 5 = \underline{\quad} \times \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = 5 \times 9$$

7

Find the perimeter of the following figure, if you know some of the sides:



## New Material I

### Multiplication by 10 and 100

**Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right.**

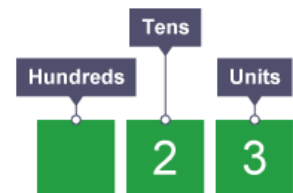
When we multiply by 10, every digit should be increased 10 times therefore should move **one** place to the left. Ones become tens, tens become hundreds and hundreds become thousands.

7

a) Example I:  $23 \times 10$

$$23 = 20 + 3$$

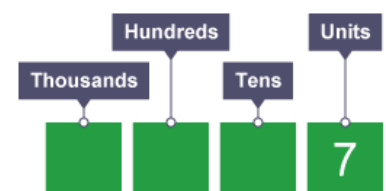
$$23 \times 10 = 20 \times 10 + 3 \times 10 = 200 + 30 = 230$$



b) Example II:  $12 \times 100$

$$12 = 10 + 2$$

$$12 \times 100 = 10 \times 100 + 2 \times 100 = 1,000 + 200 = 1,200$$



**8.**

Show how you calculate:

a)  $1 \times 10 =$  \_\_\_\_\_ b)  $1 \times 100 =$  \_\_\_\_\_ c)  $10 \times 100 =$  \_\_\_\_\_

d)  $65 \times 10 =$  \_\_\_\_\_

e)  $65 \times 100 =$  \_\_\_\_\_

f)  $650 \times 10 =$  \_\_\_\_\_

**Q:** What is "0" in each of these equations (in terms of a place value)?**9.**

By how much greater?

a) 5 and 50? \_\_\_\_\_ b) 3 and 300? \_\_\_\_\_ c) 15 and 1,500? \_\_\_\_\_

**10****How to multiply a number by 200, 300 400.....?**

$$7 \times 200 = 7 \times 2 \times 100$$

First, we multiply the non - zero digits.  $7 \times 2 = 14$ Then we multiply by 100 - place two zeroes at the end.  $14 \times 100 = 1400$ 

$$7 \times 200 = 1400$$

**11**

By how much greater?

a) 20 and 40? \_\_\_\_\_ b) 20 and 400? \_\_\_\_\_ c) 2 and 4,000? \_\_\_\_\_

**12**

Solve the problems:

a) Three watermelons weigh 4kg. How much 10 watermelons will wight? \_\_\_\_\_

b) In the 10 stories building there are 5 two-bedrooms apartments and 4 one-bedroom apartments. How many apartments are in the building? \_\_\_\_\_

c) There were 10 plates on the table and  $x$  strawberries on each plate. How many strawberries were on 10 plates? \_\_\_\_\_. On 5 plates? \_\_\_\_\_

d) Find the perimeter of the rectangle with a width equal to 3cm and a length 10 times longer.

P = \_\_\_\_\_

**Even and Odd numbers**

Even numbers are multiples of 2.

Odd numbers are NOT multiples of 2.

If you sort odd number of candies between 2 children, you will always have 1 candy left.

- 13** The sum of two different even numbers equals 20. Find all possible solutions. Remember about commutative property of addition:

\_\_\_\_\_

\_\_\_\_\_

- 14** Sort out the numbers 50 to 70 to the groups of even and odd numbers.

Even numbers: \_\_\_\_\_

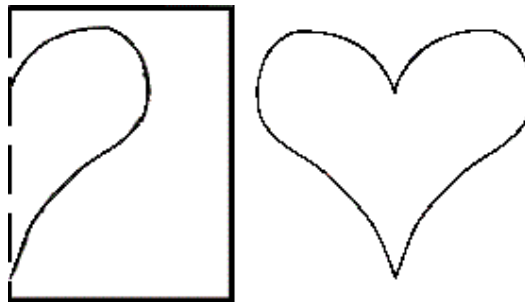
Odd numbers: \_\_\_\_\_

## New Material II

### Symmetry.

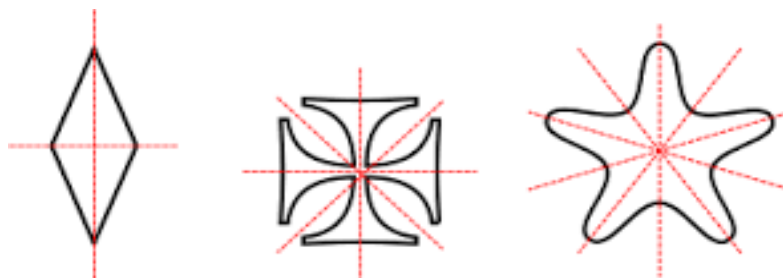
In Mathematics, a meaning of symmetry defines that one shape is exactly like the other shape when it is moved, rotated, or flipped.

*Example:* You are told to cut out a 'heart' from a piece of paper. What would you do? Don't you simply fold the paper, draw one-half of the heart at the fold and cut it out to find that the other half exactly matches the first half? The heart carved out is an example of symmetry.

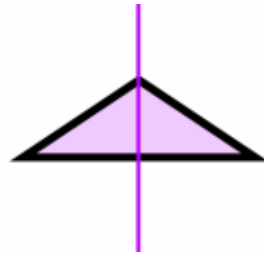
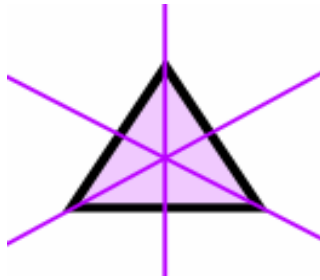


**Reflection Symmetry** (sometimes called Line Symmetry or Mirror Symmetry) is easy to spot, because one half of the shape is the reflection of the other half.

**The Line of Symmetry** (also called the Mirror Line) can be oriented in any direction.



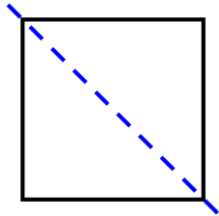
Shapes may have several lines of symmetry, one line of symmetry or none. For example, a **Triangle** can have **3**, or **1** or **no** lines of symmetry:



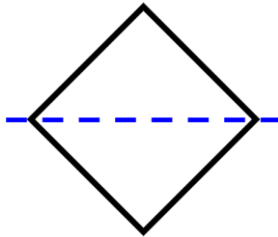
15

For each shape below, tell if the line drawn is a symmetry line or not? You can cut out the images and fold them along the dashed line to check.

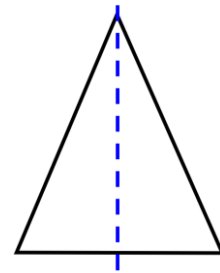
a)



b)



c)

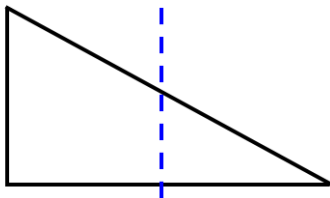


d)

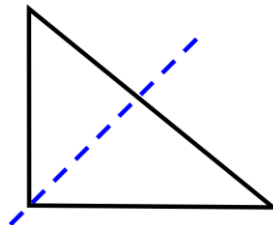
e)

f)

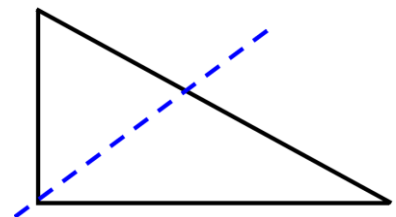
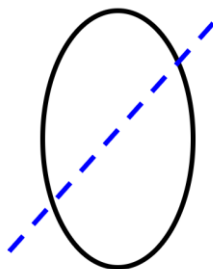
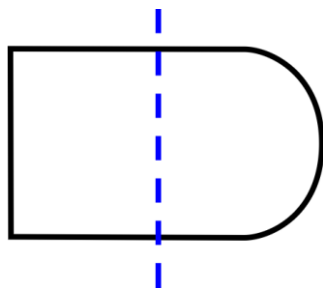
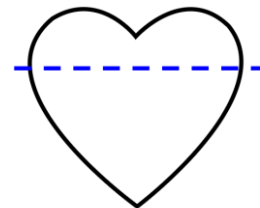
g)



h)



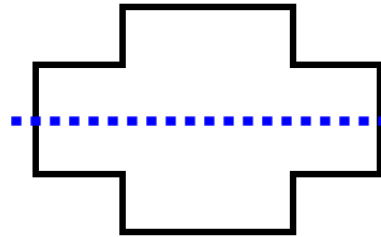
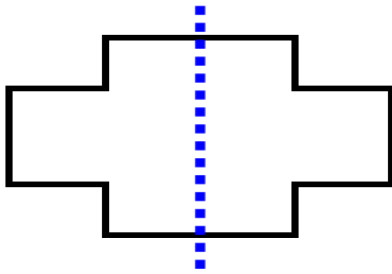
i)



16

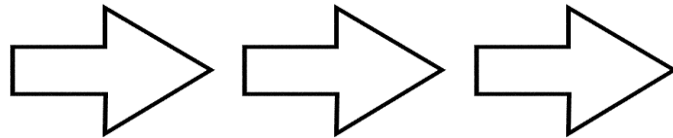
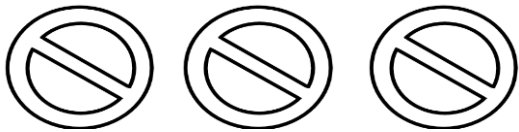
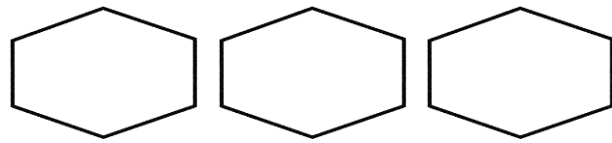
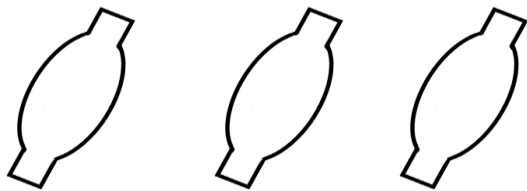
Some shapes you can fold in two different ways so that the sides meet.

The cross-shapes below have *two* different symmetry lines:



17

Draw as many different symmetry lines as you can into these shapes.



### Did you Know ...?

Symmetry (from the Greek word *συμμετρία* – *symmetria*) is found everywhere in nature and is also one of the most prevalent themes in art, architecture, and design — in cultures all over the world and throughout human history. Symmetry is undoubtedly one of the most powerful and pervasive concepts in mathematics.

The maths concept of symmetry was derived from nature.

Everything around you are symmetrical, and we observe this day in and out but never put a thought to it.

Just imagine having one eye, one ear, one hand, or leg- nothing symmetrical bout it!!! We were created symmetrically.

