Math 2 Classwork 21

Warm Up

1 Multiplication Quiz. Solve as many as you can in **3 minutes.**

5 × 0 =	3 × 5 =	6 × 5 =
10 × 5 =	4 × 3 =	4 × 4 =
6 × 3 =	6 × 2 =	6 × 4 =
8 × 1 =	8 × 10 =	8 × 5 =
2 × 7 =	2 × 9 =	2 × 6 =
9 × 100 =	9 × 5 =	9 × 3 =
7 × 6 =	8 × 7 =	7 × 7 =

2 Simplify and solve for x:

x – 6 + 1 = 4
x = ______________________
x = ________

x + 11 – (2 + 6) = 14
x = ______________________
x = _______

x + 14 – (9 + 2) = 12
x = ______________________
x = ________

x – 6 + 8 – 4 + 12 = 20
x = ______________________
x = ________

3 Calculate:

2 cm^2 + 5 cm^2 = ______ cm^2

15 cm^2 – 7 cm^2 = ______ cm^2

500 cm^2 + 1 dm^2 = ______ cm^2

3 dm^2 – 2 dm^2 = ______ dm^2

11 dm^2 + 7 dm^2 = ______ dm^2

500 cm^2 + 1 dm^2 = ______ dm^2

Homework Review

4 There are *N* pencils in the red box and *M* pencils in the white box. Masha took ***a*** pencils from the red box. Monty took ***b*** pencils from the white box. Explain the meaning of the following expressions.

a) N + M ______________
b) N – a _______________
c) M – b __________________________
d) a + b ___________________________

5 **a)** Find the perimeter and area of the rectangle with the sides 6 cm and 8 cm. Specify the correct units.

P = _____________ A = ____________________

b) Find the perimeter and area of the rectangle with the sides 4 cm and 7 cm.

P = _____________ A = ____________________

c) One side of the rectangle ***POMG*** is 6 cm. Its area is 54 cm^2. What is the other side of the rectangle? ____________________________________

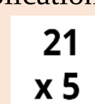
d) The side of ***SW*** rectangle ***SWVR*** is 6 cm. Its area is 42 cm^2. What is the other side (***WV***) of the rectangle? ____________________________________

New Material

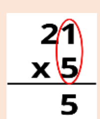
Multiplication 2-digit numbers by 1-digit numbers without regrouping.

One – Digit – One – Line method (using the column form)

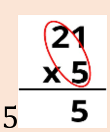
The column form is the most common way to solve 2-digit by 1-digit multiplication problems. This is also called the standard method. **First,** arrange the numbers in column form.



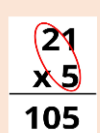
Write the **2-digit** number at the top, and the 1-digit number at the bottom. Also, remember to align the place values correctly.



Then start multiplying with the numbers on the right. $5 \times 1 = 5$



We write 5 in the ones place:



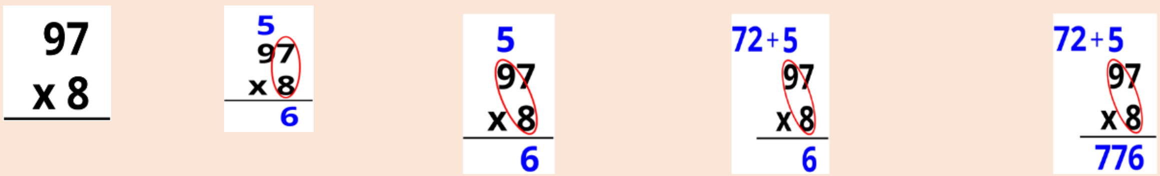
Next, we multiply $5 \times 2 = 10$
Last, we write 10 before 5:

Our answer is 105! In this simple case, we can check our answer by performing an addition: 21 + 21 + 21 + 21 + 21 = 105.

Multiplying with regrouping.

$$8 \times 97 = ?$$

Explain each step



Calculate:

6

$19 \times 5 =$ $47 \times 4 =$ $63 \times 6 =$

REVIEW I

7

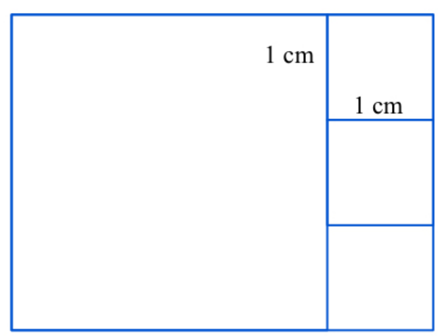
The rectangle consists of the squares. The side of the small square is 1 cm.
Find a perimeter of the rectangle.

____

____

____

____



8 Find the greatest missing number so that an inequality will still be correct.

$6 \times$ ____ < 45 $7 \times$ ____ $< 40 - 5$ $27 + 8 > 6 \times$ _____

____ $\times 9 < 32$ ____ $\times 5 < 4 \times 7$ $8 \times$ ____ $< 20 + 27$

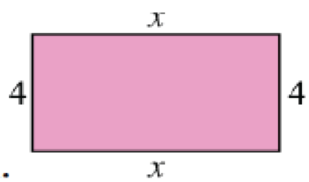
9 Find ONLY the last digit of the product:

45321×423 ______ 87325×938162 ________ 93824×156832 ____

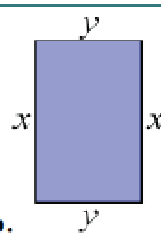
73815×38915 ____ 6783×982713 _______ 49812×390 _____

REVIEW II

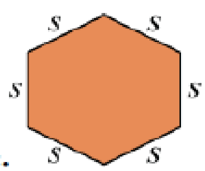
10 Write the expression for the perimeter of each shape in the simplified form.



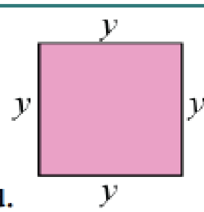
a.



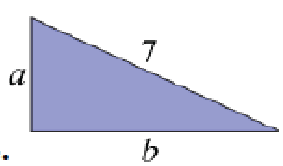
b.



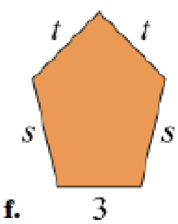
c.



d.



e.



f.

11 Solve the following word problems:

a) One side of a rectangle is 5 dm. What is its other side if the area of the rectangle is 30 dm^2? ________________________________

30 dm^2

b) One side of a rectangle is ***a*** cm. Another side is 4 cm. What is the area of the rectangle? ________________________________

_____ cm^2

c) The area of a rectangle is 24 m^2. What is the width of the rectangle if its length is 8 m?

24 m^2

Did you know …

Importance of measuring area.

When building a table, putting a picture on the wall, taking some cough mixture, timing a race, and so on, we need to make measurements. Measurement answers questions such as: how big, how long, how deep, how heavy? We buy material by the meter and drive some kilometers. We state the floor space of a building in square meters, measure medicine in cubic centimeters or milliliters, and buy milk by the liter or gallons. To pave a garden, we need to know the area of the space to be paved, and when filling a pool, we need to know the volume of water required. Thus, measuring and calculating areas and volumes are two of the most basic mathematical skills required in everyday life.
Accurate measurement is essential in engineering, physics, and all branches of science. For example, astronomers need to measure time with extremely high accuracy since astronomical information is recorded from various parts of the earth. The data needs to be superimposed to obtain a complete picture. Scientific theory always requires experiment and testing, and this often involves making very careful measurements, often at very small or huge orders of magnitude.

The origin of the word **area is from 'area' in Latin**, meaning a vacant piece of level ground.

Some of the first known writings about the area came from Mesopotamia. The Mesopotamians developed the concept to deal with the size of fields and properties:
The concept of the area had many practical applications in the ancient world and past centuries:

- The architects of the pyramids at Giza, which were built about 2,500 B.C., knew how large to make each triangular side of the structures by using the formula for finding the area of a two-dimensional triangle.
- The Chinese knew how to calculate the area of many different two-dimensional shapes by about 100 B.C.
- Johannes Keppler, who lived from 1571 to 1630, measured the area of sections of the orbits of the planets as they circled the sun using formulas for calculating the area of an oval or circle.
- Sir Isaac Newton used the concept of area to develop calculus.

Among the inscribed clay tablets from Old Babylonia (ca. 1800-1600 BCE in what is now Iraq) in the Yale Babylonian Collection (YBC) are some informative mathematical finds. YBC 7290, shown above, contains a student scribe's exercise in which he (scribes were male) recorded the area of a designated trapezoid.