school nova ™

Commutative property of addition. Subtraction.

Math 2
Classwork 7

WARM-UP

1

Compare without calculating:

57 + 29 ☐ 57 + 30   57 – 29 ☐ 57 – 30   58 + 30 ☐ 59 + 29

65 + 18 ☐ 65 + 20   65 + 18 ☐ 63 + 18   65 + 18 ☐ 64 + 19

47 + 18 ☐ 50 + 15   47 – 16 ☐ 47 – 19   80 – 19 ☐ 81 – 20

Homework Review

Review problem # 7 from HW #6 - distances, travelled from Pooh's house to Eeyore's house.
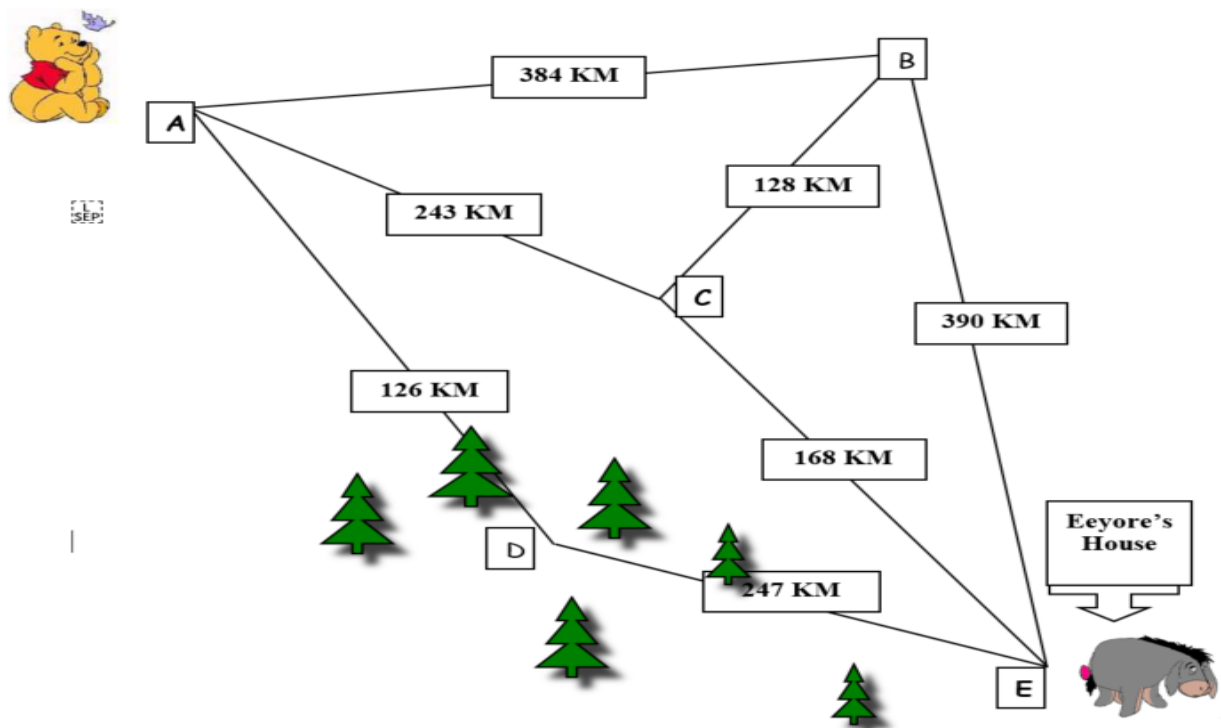
a) What is the distance from the point D to the point E? _____

b) If Eeyore goes to Pooh's house through the forest, what is the total distance he travels?

_____

c) What is the distance from the point D to the point E? _____

d) What is the total distance from point A to the point E via B? _____

e) What is the total distance from the point A to the point C via B? _____

1

f) If Pooh goes to Eeyore's house, which is the shortest route?_____

New Material I

Commutative Property of Addition

2

Look at the equality: 37 +15 + 5 = 57.

You can find the result (57) by two different ways:

1) First do addition 37 +15, then add 5 =_____

2) First do addition 15 + 5, then 37 + result =_____

Are the results the same?_____ Which is the correct way?_____

> The commutative property of addition:
> For **Addition** the order of operations does not matter.
> Before making your calculations, it's a good idea to see if there is some different order you can add to make the addition easier.

3

Figure out what is the easy order of operations and calculate:

a) 88 + 28 + 12 = _____   b) 45 + 73 + 27 = _____   c) 50 + 32 + 50 +9 = ____

d) 33 + 38 + 66 = _____   e) 39 + 37 + 41 = _____   f) 55 + 18 + 22 + 4 = ____

4

When the "look for order" trick can be handy:

a) Find: 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 =

REVIEW

5

Convert:

6 m = ____ dm   9 m = ____ dm   5 m 9 dm = _____ dm

70 dm = ____ m   200 cm = ____ m   48 dm = ____ m ____ dm

300 cm = ____ dm   400 cm = ____ m   83 dm = ____ m ____ dm

6

Compare, using <, > or =:

5m ___ 4m 9dm   6m ____ 6m10dm

9m ___ 81dm   84dm ____ 8m4dm

210cm ___ 21dm   350cm ____30dm5cm

New Material II

Subtraction

Subtraction word problems often feature stories about losing, giving away, spending or eating.

Solve the problems:

7

a) Etan had 4 candies. He gave 2 to his friend. How many candies does he have now?

_____

b) Etan had 4 dozen candies. He gave 2 dozen to his friend. How many candies does he have now? _____

c) Etan had 4 hundred candies. He gave 2 hundred to his friend. How many candies does he have now? _____

Subtraction with "regrouping"

To "regroup" means to convert a ten to 10 ones or a hundred to 10 tens, etc.

After regrouping, you can "borrow" 1 ten or 1hundred

8   Calculate:

$$
\begin{array}{r} 3\ 2 \\ -\ \ 8 \\ \hline \end{array}
\qquad
\begin{array}{r} 4\ 5 \\ -\ 1\ 6 \\ \hline \end{array}
\qquad
\begin{array}{r} 6\ 4 \\ -\ \ 9 \\ \hline \end{array}
\qquad
\begin{array}{r} 1\ 0\ 1 \\ -\ \ \ 9 \\ \hline \end{array}
$$

9

a) Chris is 172 cm tall. His sister is 27 cm shorter than him. How tall is Chris's sister? (Present your calculation vertically)

b) Brian is reading a book which has 230 pages. For the last three days, he read 205 pages. How many pages are left to read? (Present your calculation vertically)
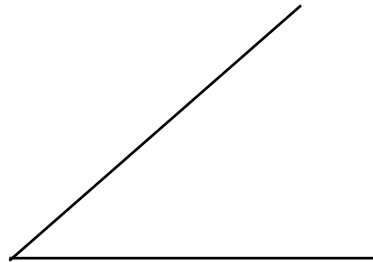
10

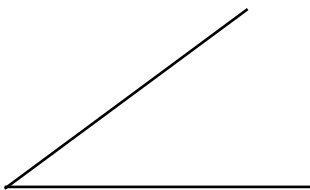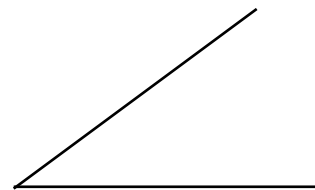Draw a second angle for each case so that the intersection of the two angles would be:
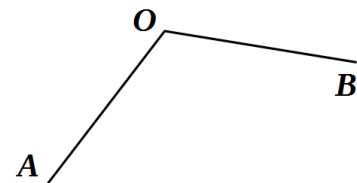
a) ... a point;
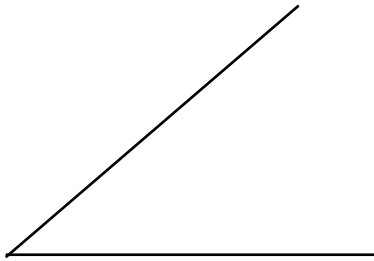
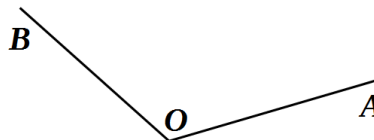c). ...a triangle;

b). ... a ray;

d). ...a line segment

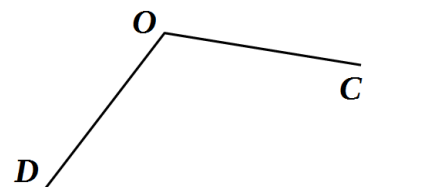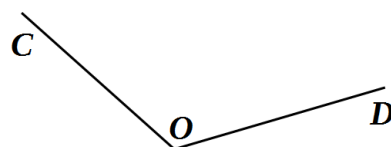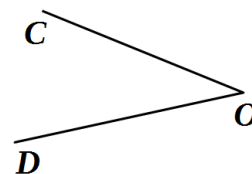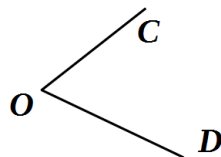**11**

Use a ruler to draw a ray $\overrightarrow{OM}$ so that …

a) ray $\overrightarrow{OB}$ would be inside the ∠AOM:
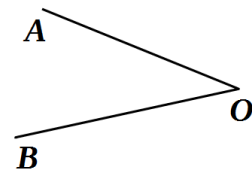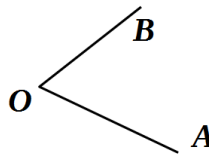
b) ray $\overrightarrow{OB}$ will be inside the ∠COD:

4

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Did you know …

</div>

How did people measure length?

The way base units of length have been determined has changed dramatically over time. Long ago, the base for reference was the human body. For example, the cubit was a unit that indicated the length from the elbow to the fingertips. This unit was used in ancient cultures in Mesopotamia, Egypt, and Rome. The length varied from region to region, ranging from 450 to 500 mm. Studies have proven that Egypt's pyramids, known for their accurate construction, were built using two types of cubits: a long one and a short one. It is said that the standard measure of length in these eras was the body of the country's ruler or some other powerful individual. Even today, units of length based on the human body are used in countries such as the United States, such as the yard, foot, and inch.
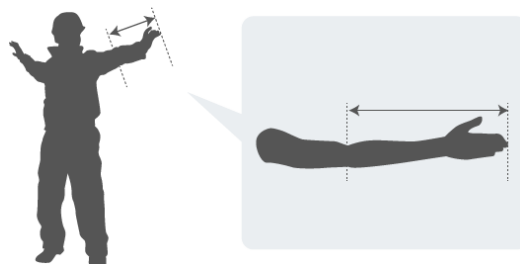
Length units based on the human body were used for thousands of years. This continued until a significant change took place around 200 years ago. As the Age of Discovery came to an end and industry grew primarily in Western Europe, it became necessary to unify length units on a global scale.

The metric system was first developed in France during the French Revolution. A French law passed in 1795 defined five units of measure. Three of them are still in use today. They are the meter, the unit of length, the gram that is the unit of mass, and the liter, the unit of volume.

In 1960 the rules for the metric system were revised. The revised system was called the "International System of Units" (which is often written "SI" for short). The definition of SI also included rules for writing SI quantities. These rules are the same for all languages.

In the metric system, the length is measured in meters. The symbol for the meter is the letter "m." The meter was originally defined as $1/10,000,000$ of the distance between the North Pole and the Equator on the meridian that passed through Paris. In 1799, a platinum bar equal to this length was made and became the "prototype meter."

In the metric system, all units have a "symbol." Symbols are a shorthand way of writing the names of units.

The imperial system works with units that are still used in the United Kingdom, Canada, and other countries formerly part of the British Empire.

Only three countries officially use the Imperial system – The United States, Myanmar (Burma), and Liberia, making up 5% of the world's population using that system.