

WARM-UP

1.

a) Skip-count by 10s from 10 to 200: _____

b) Skip-count by 5s from 5 to: 50 _____

2.

Find a TRUE statement among the following statements:

- _____ Bears fly
- _____ Birds fly
- _____ Frogs fly
- _____ Sparrows fly



3.

Calculate. Show your strategy.

$47 + (20 - 7) =$

$34 + (40 - 4) =$

$45 - (30 + 5) =$

$34 - (39 + 4) =$

$46 - (20 - 4) =$

$34 - (30 - 6) =$

$8 \times 2 =$

$8 \times 20 =$

4.

Make two expressions equal:

$17 + 12 = 20 + \square$

$37 + 19 = 40 + \square$

$79 + 24 = 80 + \square$

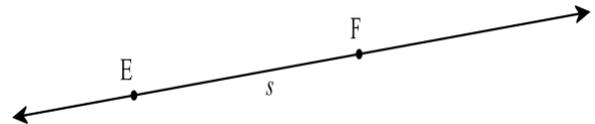
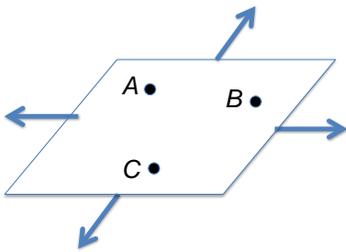
REVIEW

Point, Line and Plane are basic objects of Geometry.
All other objects are defined using points, lines, and planes.

P •

This is a point P. We define a point as a location. Points do not have size. Points are named by capital letters.

A Plane is a flat surface. It extends infinitely in ALL directions. We label a Plane by one capital letter R or by 3 points – A, B, C not lying on the same line.



This is a straight line EF. Line has no beginning point and no end point. We label a Line by any 2 points on it \overleftrightarrow{EF} or by any lowercase letter: s

5.

Using a ruler draw lines going through points:

- a) A and B b) C and D c) E and F

A □ □ •

□ □ B •

E •

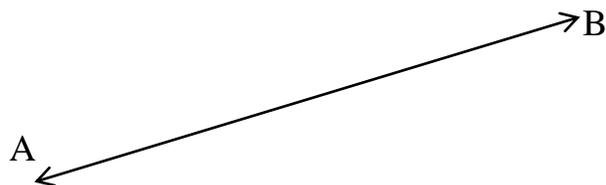
D •

C •

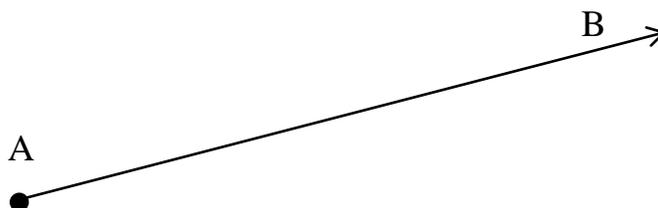
F •

6.

This line is called AB. It can also be called BA. Line BA is the same as line AB.



Is ray AB the same as ray BA? What do you think?



Can you measure lines? Can you measure rays? Explain. What can be measured?

REVIEW

Most commonly used variables: x , y , z , a , b , c , m , and n

Using of Variables:

- Variables as Unknown.** Solve equation in order to replace a variable with value.
- Variables that Vary.** Example: $a + b = 10$. In this equation a can have any value from 0 to 10 and b can have any value from 10 to 0. We choose the value of the 1st variable, and the value of the 2nd one is dependent on the value of the first variable.
- Variables in Generalization of Arithmetic Properties.** Example: $a + b = b + a$ (commutative property of addition), or $a + 0 = a$ (zero property of addition)

7.

Solve for x and check your answer:

$$63 + x = 96$$

$$x + 12 = 88$$

$$11 + 4 = 7 + x$$

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

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

8.

Find all possible pairs of variables m and n , to make the following equality True (m and n are **even** numbers):

$$m + n = 20$$

m, n : _____

NEW MATERIAL

Find a Pattern or What Comes Next.

A **pattern** is a group of numbers, shapes, or objects that follow a rule while repeating or changing.

To extend a repeating pattern you can use a table or a pattern rule that relates the term number to the pattern rule.

A **term number** is the number that tells the position of an item in a pattern.

For example, the pattern 2, 4, 6, 8, 10, ... can be shown in a table like this:

Term number	Number in pattern
1	2
2	4
3	6
4	8
5	10

A **pattern rule** to get any number in the pattern is multiply 2 by the term number.

$$10\text{th term} = 2 \times 10 = 20$$

10.

Find a pattern in this sequence, find a pattern rule, and use that rule to predict the next four numbers. 7, 10, 13, 16, 19, __, __, __, __.

11.

Find the 11th term in the repeating pattern below. Use a pattern rule.

Pattern: 1, 5, 9, 13,

Rule of the pattern: _____

11th term: _____

12.*

Below is a table showing addition of numbers from 1 through 5. The 1st row and the 1st column do not represent the products of addition, they simply stand for numbers are being added.

+	1	2	3	4	5
1	2	3	4	5	6
2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10

- Color all even numbers (use any color). Do you see any patterns? What does it remind you? Try to explain the pattern.
- Explain why the diagonal, from top left to bottom right, contains the even numbers 2, 4, 6, 8, and 10.
- Explain why all numbers in the other diagonal, from bottom left to top right, are 6s.

Challenge yourself

- 11.** In the morning Tom had x apples. Then his Dad gave him 2 apples and Tom found out that he had 5 apples. How many apples did Tom have in the morning? Write down an equation and solve it.

- 12.** Amy had 10 candies. On the way to school she ate x candies. How many candies did Amy eat if when she came to school she had 6 candies? Write down an equation and solve it.

Did you know ...

By studying patterns in math, humans become aware of patterns in our world. Observing patterns allows individuals to develop their ability to predict future behavior of natural organisms and phenomena. Civil engineers can use their observations of traffic patterns to construct safer cities. Meteorologists use patterns to predict thunderstorms, tornadoes, and hurricanes. Seismologists use patterns to forecast earthquakes and landslides. Mathematical patterns are useful in all areas of science.

