Lesson 23
Commutative property of multiplication. Polyhedrons.

1 Simplify and solve for X.

X + 15 – (3 + 6) = 15 _____

X – (9 - 5 + 10) = 21 _____

X + 6 – (8 – 4) + 10 = 24 _____

X + 2 + (8 + 8 – 12) = 16 _____

2 Compare if possible, using >, <, or =.

$6 \times 2 \square 6 : 2$ $\quad$ $c \times 2 + c \square c \times 3$ $\quad$ $5 \times 2 \square 5 + 2$

$7 \times 3 \square 6 + 6 + 6$ $\quad$ $y \times 4 + y \times 2 \square y \times 5$ $\quad$ $q \times 2 \square q : 2$

$6 : 3 \square 6 : 2$ $\quad$ $24 : 6 \square 24 : 4$ $\quad$ $t : 2 \square t : 3$

3 Solve the problems.

Four kids shared 12 pancakes. How many pancakes did each kid eat?

_____ Check:_____

A mom bought 5 cakes and spent $25. How much did each cake cost?

_____ Check:_____

There are 24 cookies total in 6 boxes. How many cookies are in one box?

_____ Check:_____

A boy walked 18 km in 3 hours. How many kilometers did he walk each hour?

_____ Check:_____

4 Write expressions for each word problem:

n apples were divided among ***x*** kids. How many apples did each kid receive?

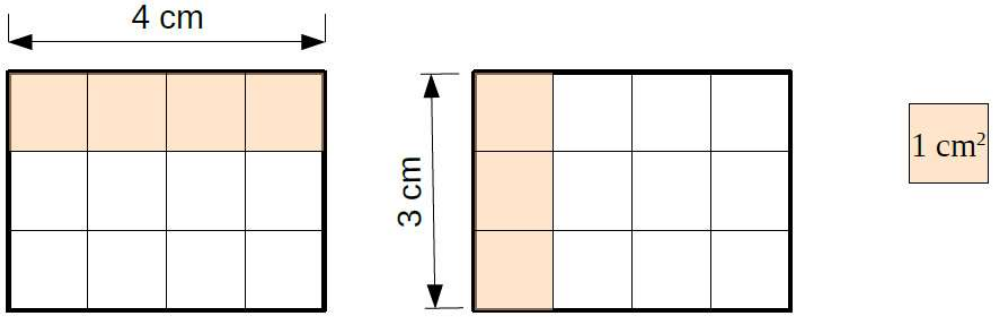
_____

x cookies were distributed evenly into ***m*** boxes. How many cookies are in each box?

_____

Commutative property of multiplication.

A rectangle is 4 cm long and 3 cm wide. Find the area of the rectangle in square centimeters (cm^2). Look at the two ways to solve this problem illustrated by the drawings:



Method I: S = 4 cm^2 × 3 = ____ cm^2 **Method 2**: S = 3 cm^2 × 4 = ____ cm^2

The **Commutative Property of Multiplication**. The **commutative property of multiplication** states that two numbers can be multiplied in either order.

5 Use the commutative property of multiplication to evaluate the expressions

A. 3 × 1 = 1 × 3 = _____ **Conclusion**: ***a*** × 1 = _____

5 × 1 = 1 × 5 = _____

7 × 1 = × = _____

9 × 1 = × = _____

B. 3 × 0 = 0 × 3 = _____ **Conclusion**: ***a*** × 0 = _____

5 × 0 = 0 × 5 = _____

7 × 0 =___×___= _____

9 × 0 =___×___= _____

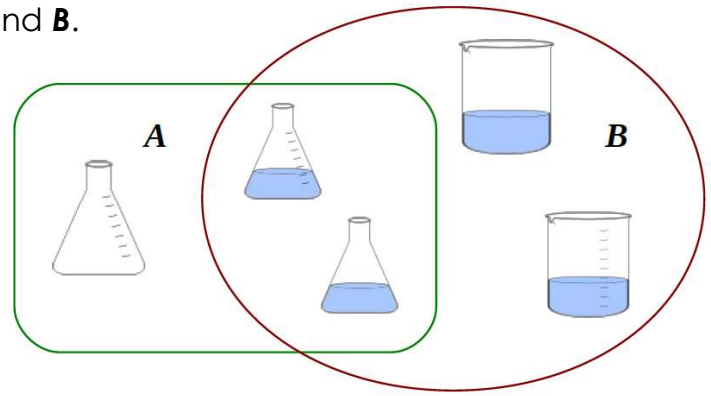
6 Use the rectangles to visualize the equations and to solve them.

$x \times 6 = 30$	$42 : y = 7$	$9 \times z = 72$	$t : 6 = 8$
x = ____	y = ____	z = ____	t = ____

7 Describe the properties of sets ***A*** and ***B***.

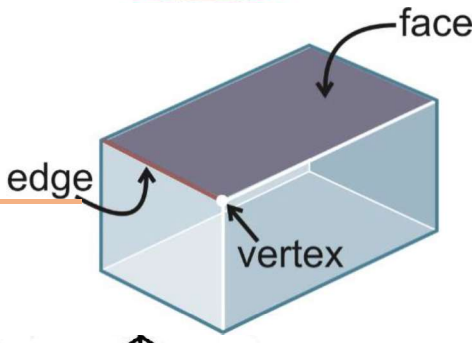
A: _____

B: _____

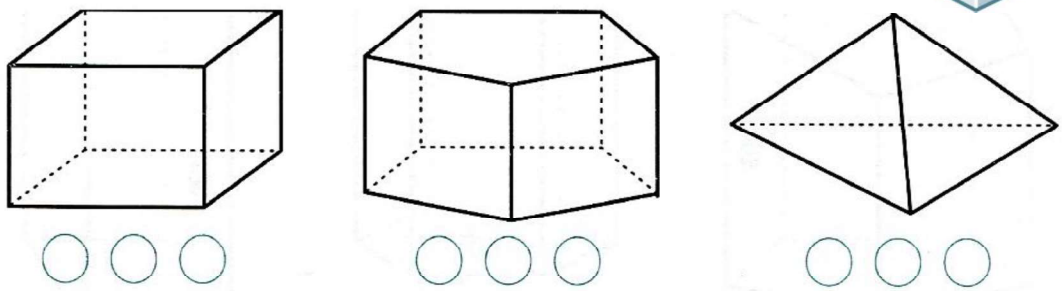


Polyhedrons.

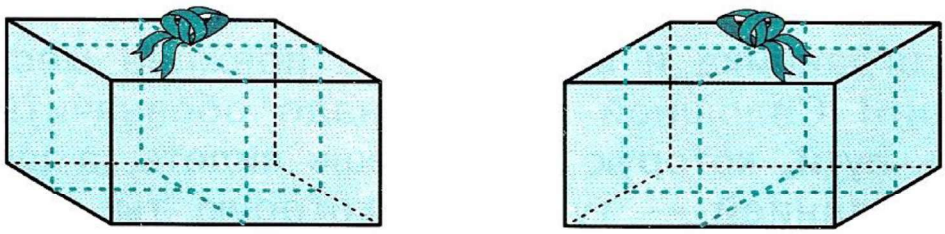
A **polyhedron** is a solid with flat faces (from Greek poly- meaning "many" and -edron meaning "face").



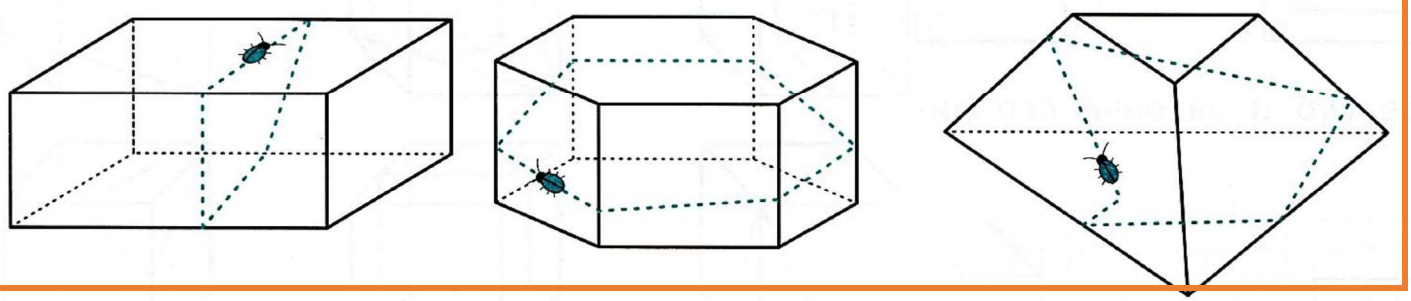
8 In the circles, write the number of vertexes, faces, and edges each polyhedron has.



9 Ribbon was used to tie a bow around each of the presents. Trace in red the part of the ribbon that you would be able to see.

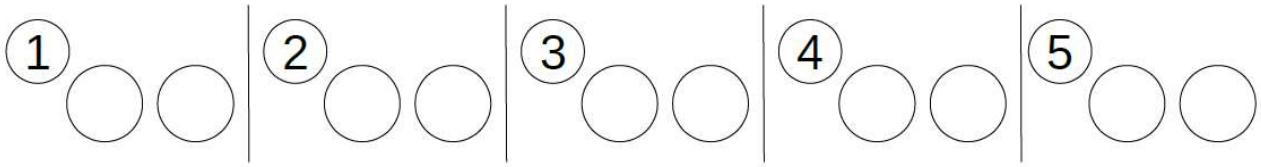


10 Imagine that there is a bug crawling over the surface of a solid polyhedron. Trace with a solid red line the parts of the path you would be able to see. Trace with dashed lines the parts of the path that you would not be able to see.



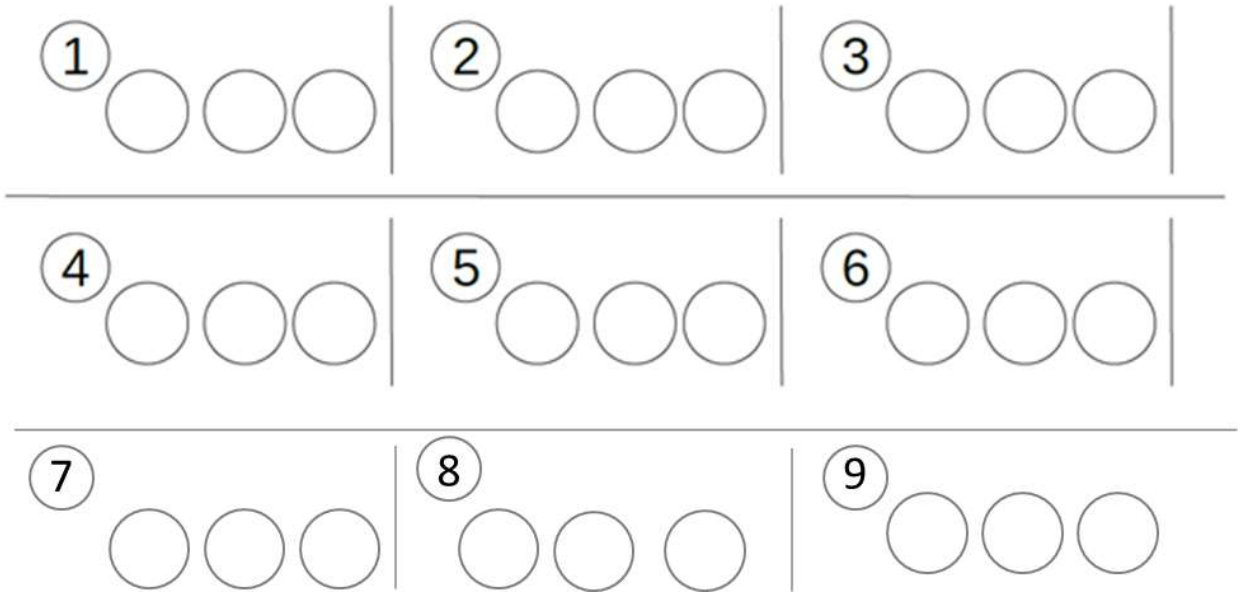
11 Imagine a bag with many red and many blue marbles inside.

You need to pick two marbles out of the bag. What colors could they be?



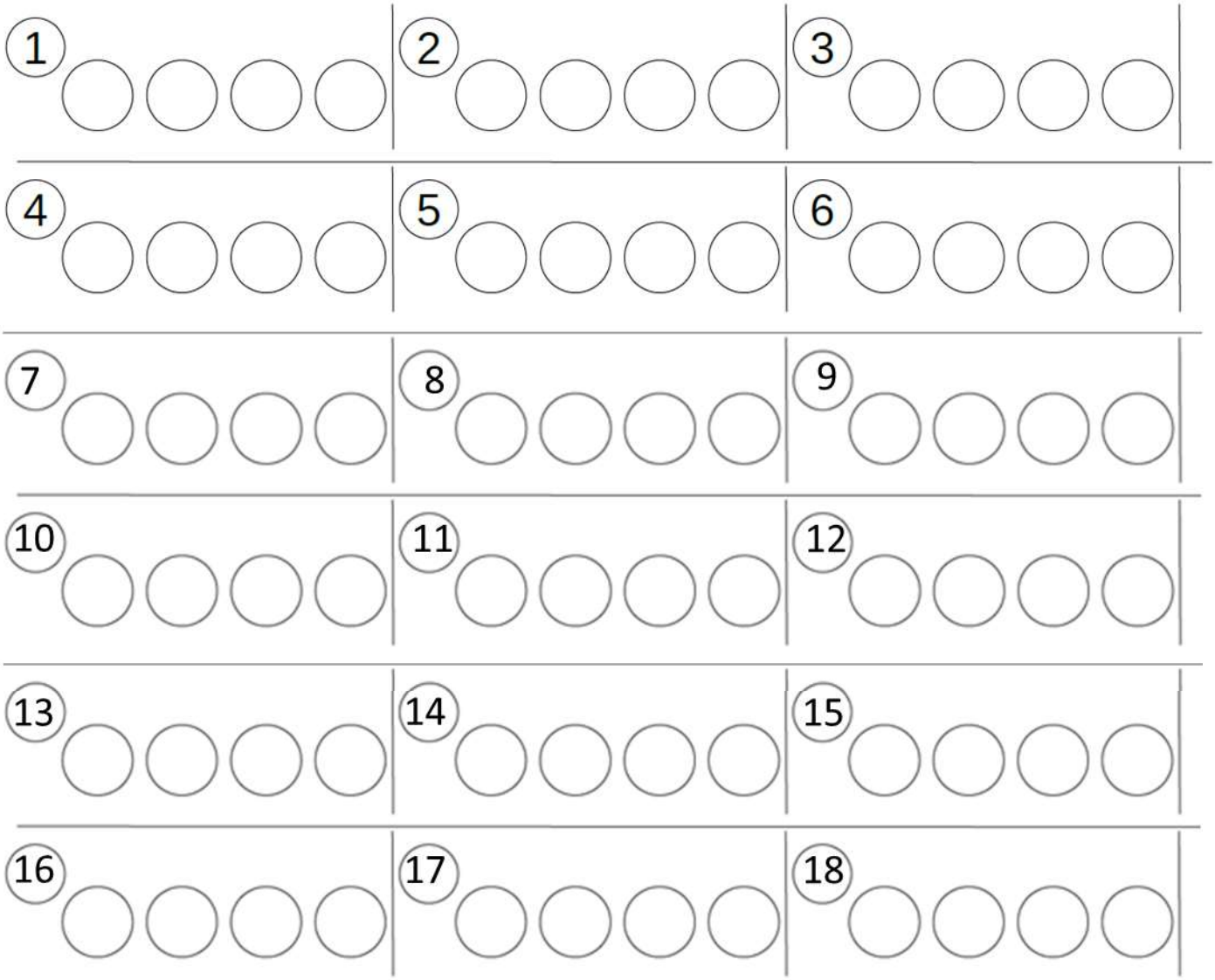
How many different outcomes could you get? _____

You need to pick three marbles out of the bag. What colors could they be?



How many different outcomes could you get? _____

You need to pick four marbles out of the bag. What colors could they be?



How many different outcomes could you get? _____