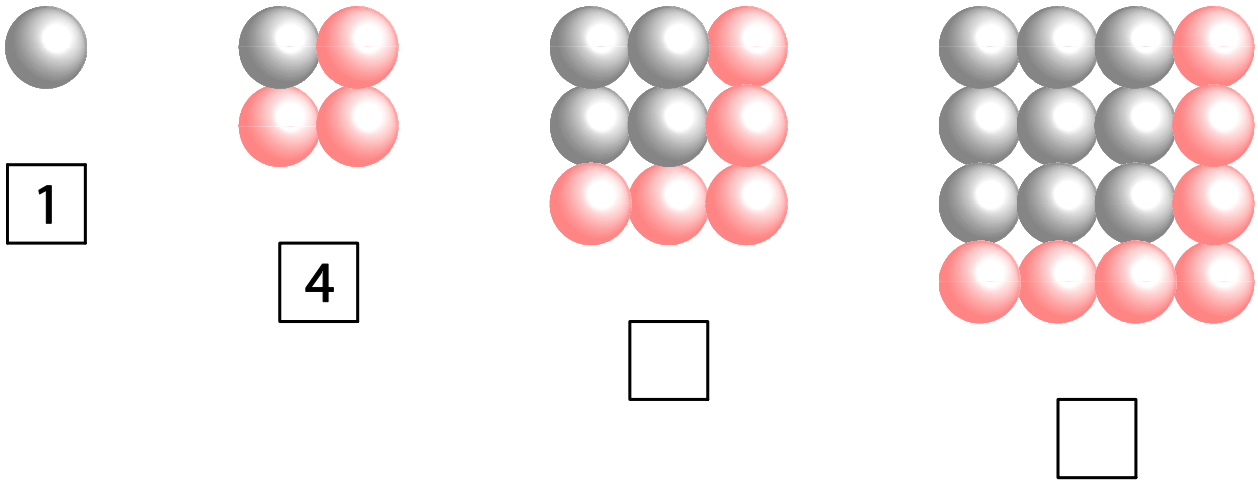
SQUARE NUMBERS



$$1 + 3 = 4 = 2^2$$

$$4 + 5 = 1 + 3 + 5 = 9 = 3^2$$

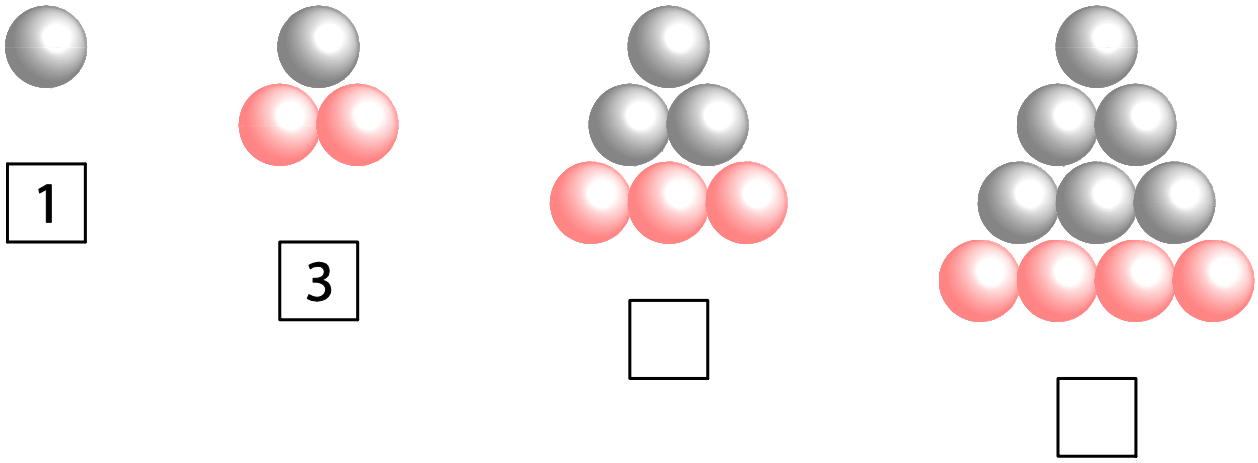
$$9 + 7 = 1 + 3 + 5 + 7 = 16 = 4^2$$

Can you see the pattern? Find the sums without adding:

$$1 + 3 + 5 + 7 + 9 =$$

$$1 + 3 + 5 + 7 + 9 + 11 =$$

TRIANGULAR NUMBERS



1

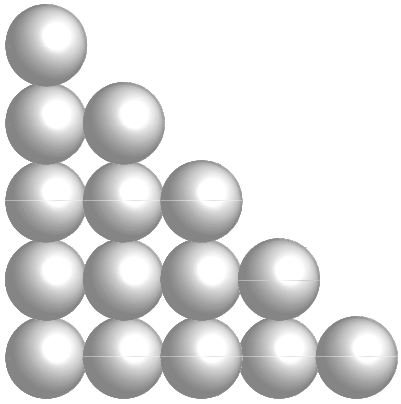
3 = 1 + 2

6 = 3 + 3 = 1 + 2 + 3

10 = 6 + 4 = 1 + 2 + 3 + 4

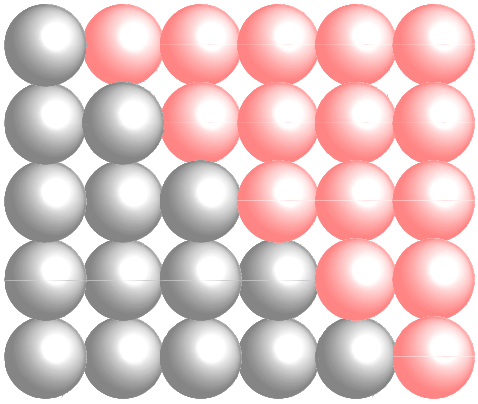
Write down next two triangular numbers:

CALCULATING TRIANGULAR NUMBERS



15

5^{th} triangle number



$$6 \times 5 = 30$$

$$30 \div 2 = 15$$

100^{th} Triangle number:

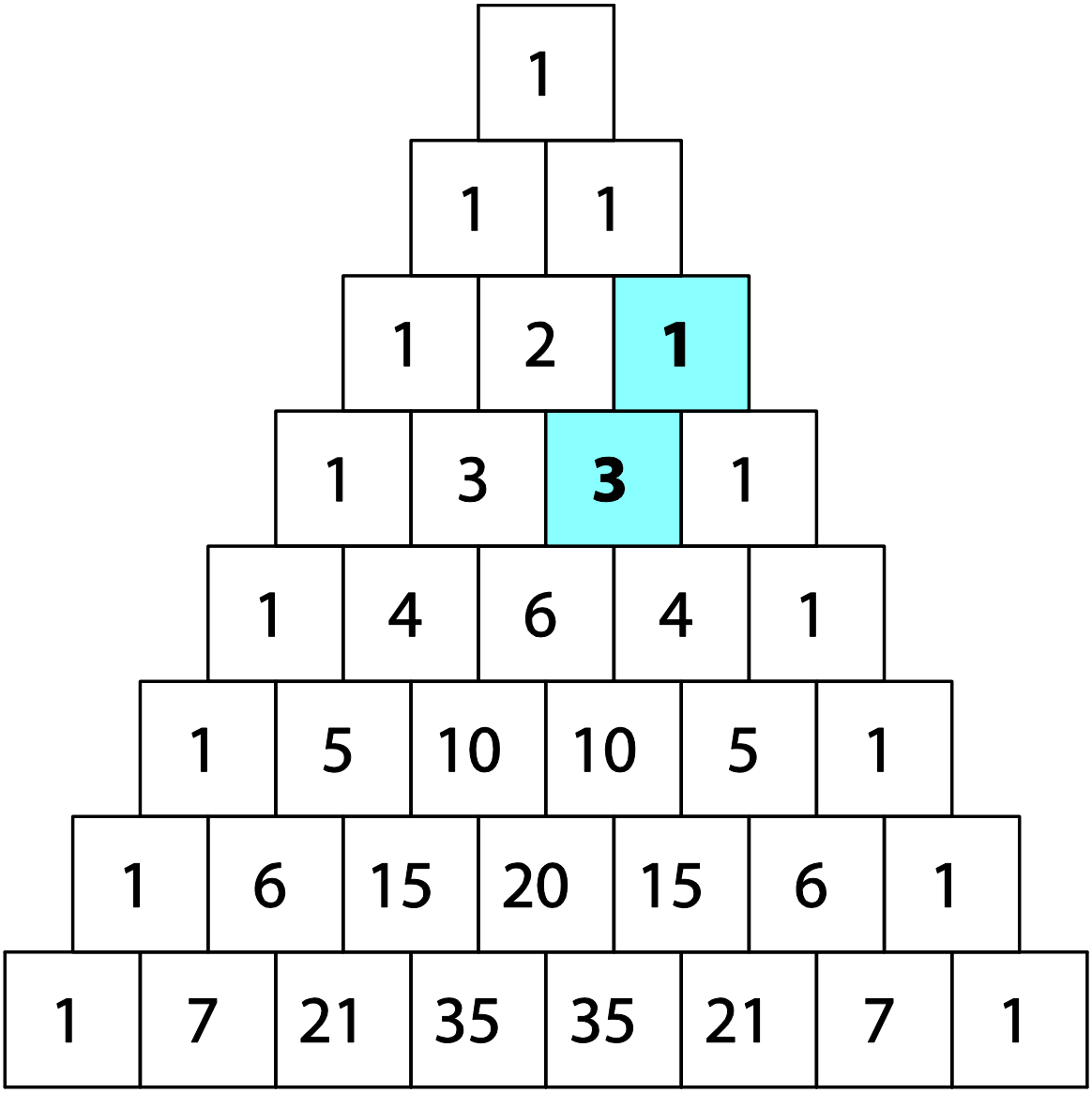
$$101 \times 100 = 10100$$

$$10100 \div 2 = 5050$$

Find the 10^{th} triangle number:

Write down the first six triangle numbers:

PASCAL TRIANGLE



Color triangle numbers starting with blue cells.

DOUBLE SCOOP ICE CREAM PARLOR

You are at your favorite ice cream shop and you can get a double scoop cone. How many possible double scoop cones can you get?

1. Start with your two favorite flavors. How many different choices are there? Draw pictures.

2. Add your third favorite flavor. How many different choices of two scoop ice cream cones are there? Draw pictures.

3. Add your fourth favorite flavor. How many different choices of two scoop ice cream cones are there?

4. Do you see a pattern? Can you guess how many different choices of two scoop cones there are when you use 5 flavors?

Homework:

Ask your parents to take you to your favorite ice cream shop and count the number of different ice cream flavors there are. How many different choices of double scoop cones can be made of all the flavors? You can use a calculator.

DOUBLE SCOOP ICE CREAM PARLOR

MENU

t o p	**Vanilla**		
	Chocolate		
	2 flavors	**Chocolate**	**Vanilla**

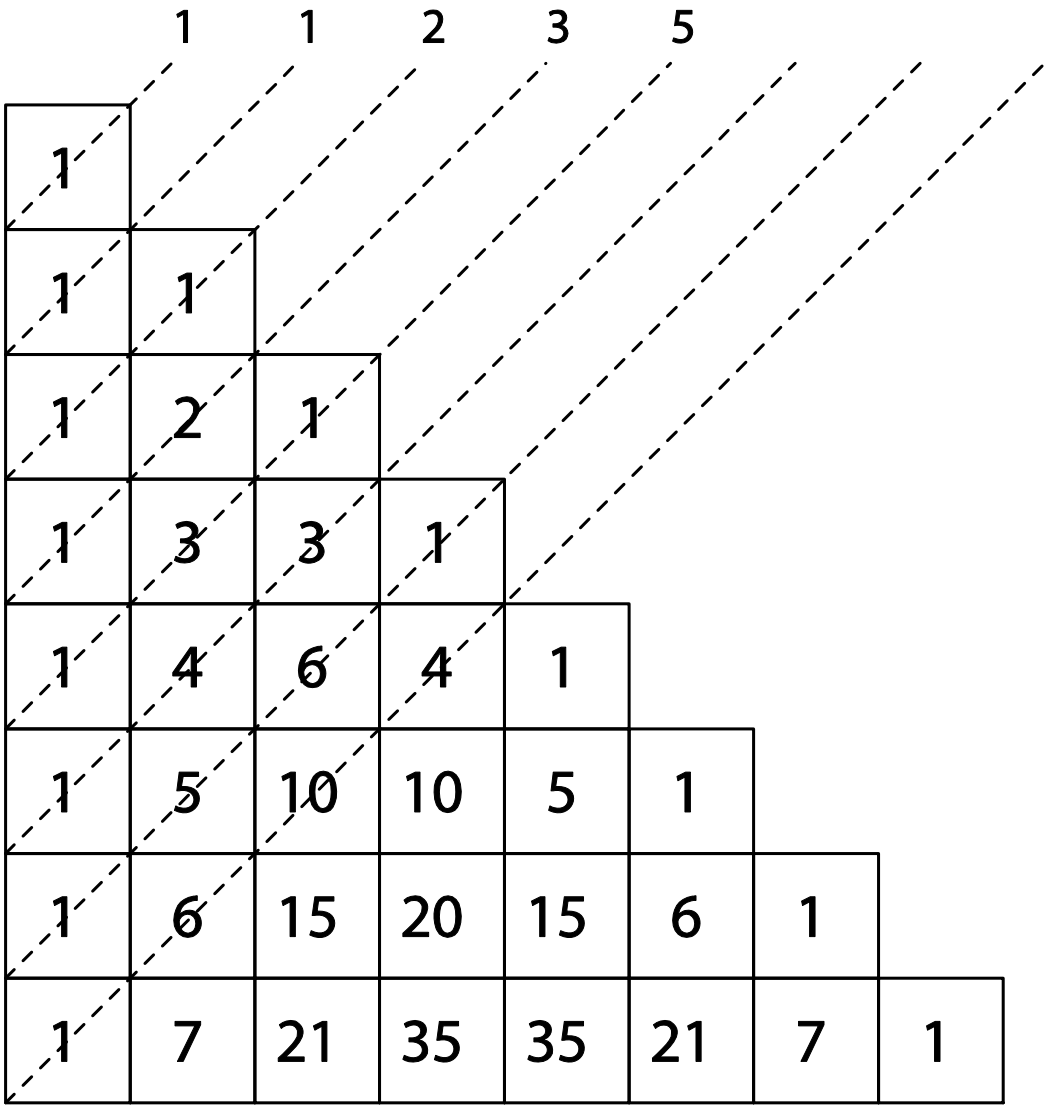
bottom

t o p	**Strawberry**			
	Vanilla			
	Chocolate			
	3 flavors	**Chocolate**	**Vanilla**	**Strawberry**

bottom

FIBONACCI NUMBERS

Calculate the three remaining sums:



Can you see the pattern? Write down several more Fibonacci numbers:

1, 1, 2, 3, 5, 8, ____, ____, ____, ____, ____