Always, Sometimes, Never….

Write in the missing value for each of the calculations below

Check your answers with a calculator and correct any that you have got wrong.

1. $12 + 6 = \ldots$

    $6 + 12 = \ldots$

5. $12 + \ldots = 24$

    $12 - \ldots = 24$

2. $12 - 6 = \ldots$

    $6 - 12 = \ldots$

6. $12 + \ldots = 6$

    $12 - \ldots = 6$

3. $12 \times 6 = \ldots$

    $6 \times 12 = \ldots$

7. $12 \times \ldots = 24$

    $12 \div \ldots = 24$

4. $12 \div 6 = \ldots$

    $6 \div 12 = \ldots$

8. $12 \times \ldots = 6$

    $12 \div \ldots = 6$

In Maths the word COMMUTATIVE means that the answer is the same whichever way around the numbers are placed. Can you use this word when you answer the question below?

What do you notice :-

Consider each of the statements below

$3 + x = x + 3$ It doesn't matter which way round you add, you get the same answer.	$2 - x = x - 2$ It doesn't matter which way round you subtract, you get the same answer.
$5 \times x = x \times 5$ It doesn't matter which way round you multiply, you get the same answer.	$x \div 2 = 2 \div x$ It doesn't matter which way round you divide, you get the same answer.
$5 + x > 5$ If you add a number to 5, your answer will be more than 5.	$x + 8 > x$ If you add 8 to a number, your answer will be more than the number.
$5 - x \leq 5$ If you take a number away from 5, your answer will be less than or equal to 5.	$x - 10 > x$ If you take 10 away from a number, the answer will be greater than the number.

You need to consider lots of different (types of) numbers that could be substituted for x. Here are some types of numbers that you could try.

Large and Small Integers	Decimals	Fractions	Negative numbers	Special numbers
100	0.3	$\frac{1}{2}$	-5	0
2	0.05	$3\frac{1}{4}$	-0.7	1

Decide if each statement is Always, Sometimes or Never true.

Now consider these statements
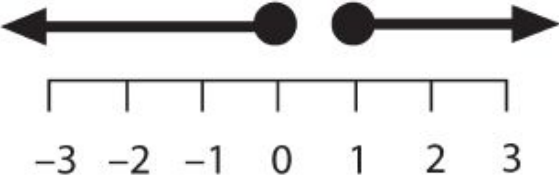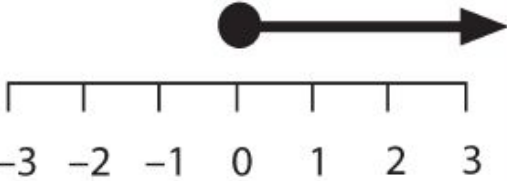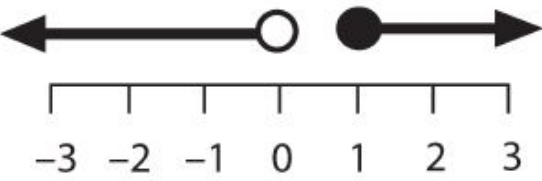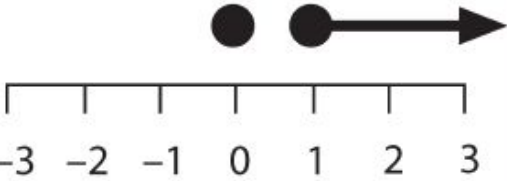
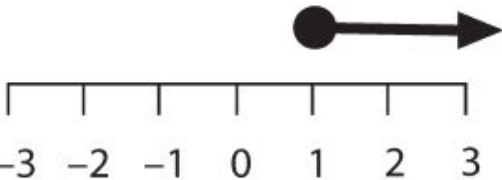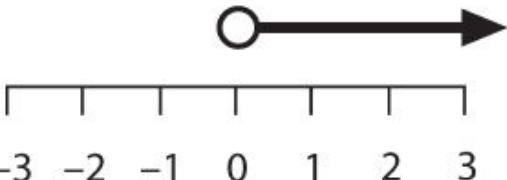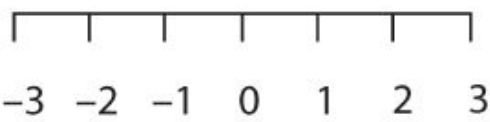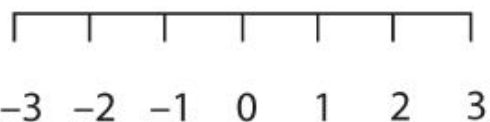|	
$4x \geq 4$ If you multiply 4 by a number, your answer will be greater than or equal to 4.	$10x \geq x$ If you multiply 10 by a number, your answer will be greater than or equal to the number.
$\dfrac{x}{2} < x$ If you divide a number by 2, the answer will be less than the number.	$\dfrac{10}{x} \leq 10$ If you divide 10 by a number, your answer will be less than or equal to 10.
$\sqrt{x} \leq x$ The square root of a number is less than or equal to the number.	$x^2 \geq x$ The square of a number is greater than or equal to the number.

Using the same strategy, decide if these statements are Always, Sometimes or Never true?

Can you match the number lines below with the 'sometimes true' solutions from the first two tasks.

There are some blank number lines if you need them?

B1

Sometimes true

−3 −2 −1 0 1 2 3

B2

Sometimes true

−3 −2 −1 0 1 2 3

B3

Sometimes true

−3 −2 −1 0 1 2 3

B4

Sometimes true

−3 −2 −1 0 1 2 3

B5

Sometimes true

−3 −2 −1 0 1 2 3

B6

Sometimes true

−3 −2 −1 0 1 2 3

B9

−3 −2 −1 0 1 2 3

B10

−3 −2 −1 0 1 2 3