Getting to Greater Depth in KS2 Maths

108 Greater Depth Questions for KS2 Maths Mastery
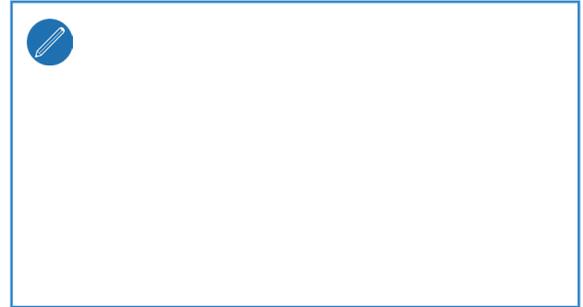
Year 6

THIRD SPACE LEARNING

Always, Sometimes, Never Questions: **Squares**

Please tick your answer to each question, and use the box on the right to explain the reasons why you think your answer is correct.

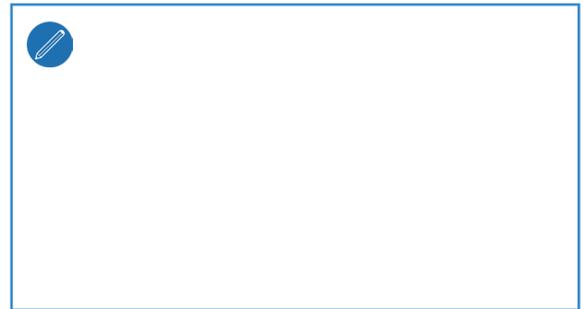Are the following statements always, sometimes, or never true? What do you think?

1. There are 64 squares on a 8 x 8 chessboard

   ☐ Always

   ☐ Sometimes

   ☐ Never

2. A square is also a rhombus

   ☐ Always

   ☐ Sometimes

   ☐ Never

3. A square is smaller than a rectangle

   ☐ Always

   ☐ Sometimes

   ☐ Never

4. A square can be split into two triangles

   ☐ Always

   ☐ Sometimes

   ☐ Never

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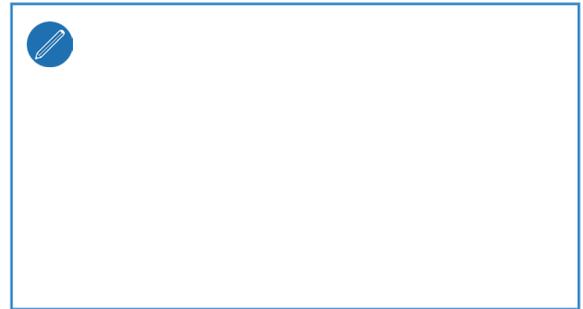
5. A square has 8 angles
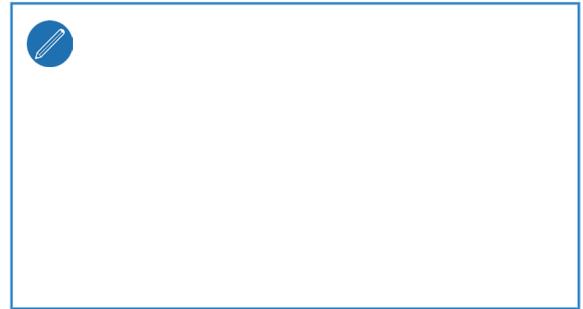
☐ Always

☐ Sometimes

☐ Never

6. The diagonals of a square are longer than its sides
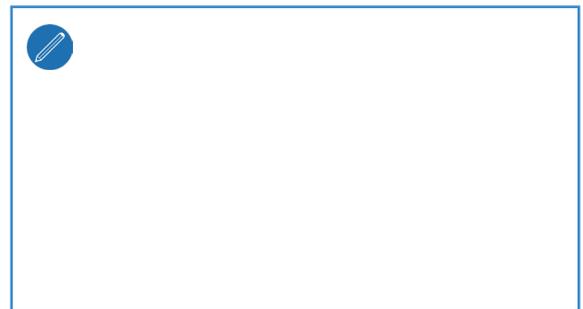
☐ Always

☐ Sometimes

☐ Never

7. You can never have an irregular square

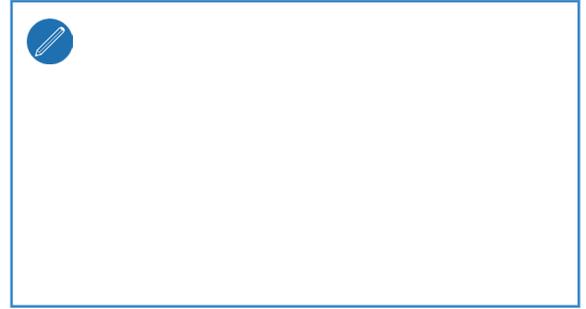☐ Always

☐ Sometimes

☐ Never

8. A square has four congruent edges

☐ Always
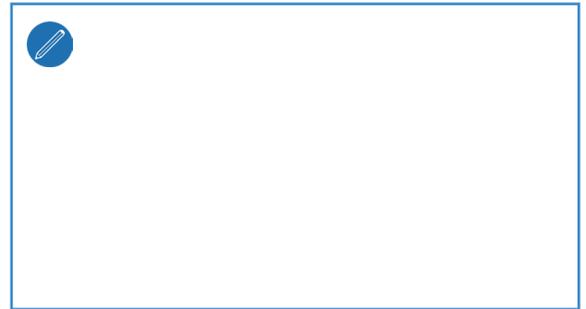
☐ Sometimes

☐ Never

9. The angles of a square add up to 90 degrees
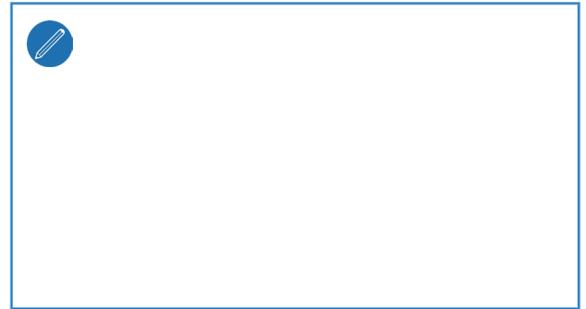
☐ Always

☐ Sometimes

☐ Never

10. A square is half a rectangle

☐ Always

☐ Sometimes

☐ Never

11. A square is an equilateral tetragon

☐ Always

☐ Sometimes

☐ Never

12. A square is never concave

☐ Always

☐ Sometimes
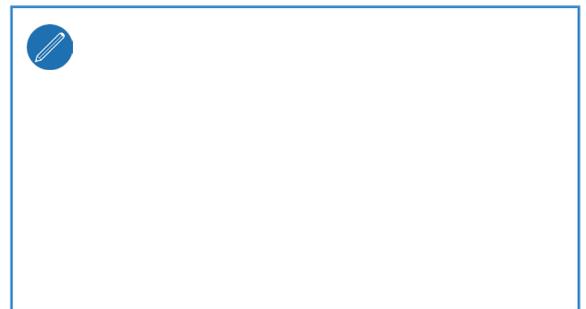
☐ Never

13. A square can also be a kite

☐ Always

☐ Sometimes

☐ Never

14. The diagonals of a square are the same as its sides

☐ Always

☐ Sometimes
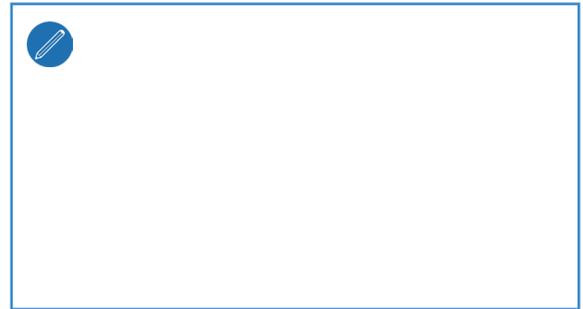
☐ Never

15. A square is a rectangle

☐ Always
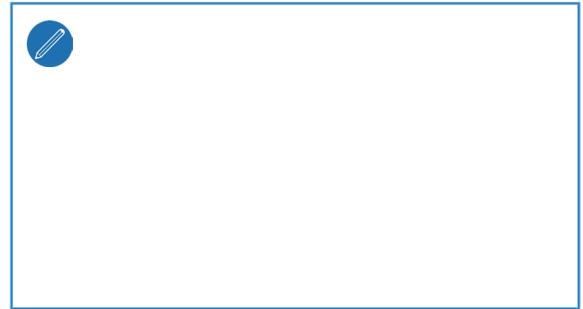
☐ Sometimes

☐ Never

16. A rectangle is a square

☐ Always

☐ Sometimes

☐ Never

Were there any statements that you found a challenge?

Why not look online for any words that you don't recognise.

Share your ideas with the rest of the class.

Now it's time to add some more statements of your own! Think of some more Always, Sometimes, Never statements about squares and write them in the spaces below.

- -
- -

☐ Always

☐ Sometimes

☐ Never

- -
- -

☐ Always

☐ Sometimes

☐ Never

- -
- -

☐ Always

☐ Sometimes

☐ Never

- -
- -

☐ Always

☐ Sometimes

☐ Never

- ☐ Always

- ☐ Sometimes

- ☐ Never

Always, Sometimes, Never Questions: **X and -:-**

Please tick your answer to each question, and use the box on the right to explain the reasons why you think your answer is correct.

Are the following statements always, sometimes, or never true? What do you think?
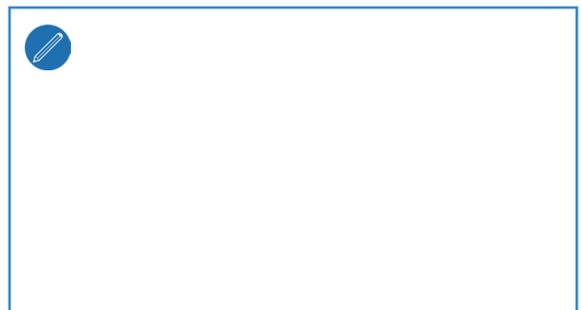
1. Multiplying is the same as adding

    ☐ Always

    ☐ Sometimes

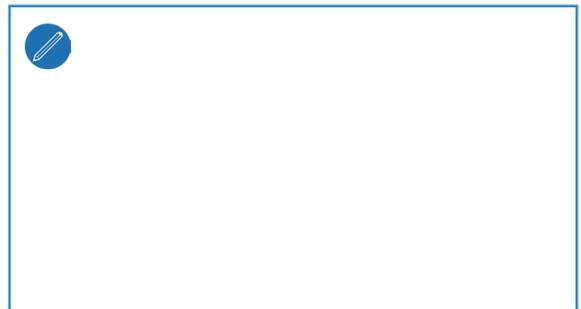   ☐ Never

2. Multiplying a number always makes it bigger

    ☐ Always

    ☐ Sometimes

    ☐ Never

3. Dividing a number always makes it smaller

    ☐ Always

    ☐ Sometimes

    ☐ Never

4. Dividing is the same as subtracting

    ☐ Always

    ☐ Sometimes

    ☐ Never

5. A number can be multiplied by zero

    ☐ Always

    ☐ Sometimes

    ☐ Never

6. It doesn't matter which numbers come first when we divide

    ☐ Always

    ☐ Sometimes

    ☐ Never

7. If a number ends in 0 it divides exactly by 10

    ☐ Always

    ☐ Sometimes
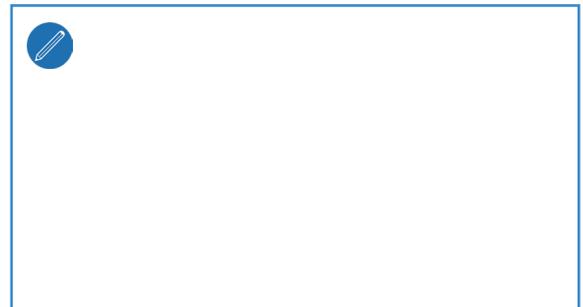
    ☐ Never

8. A multiple of 3 is a multiple of 6

    ☐ Always

    ☐ Sometimes
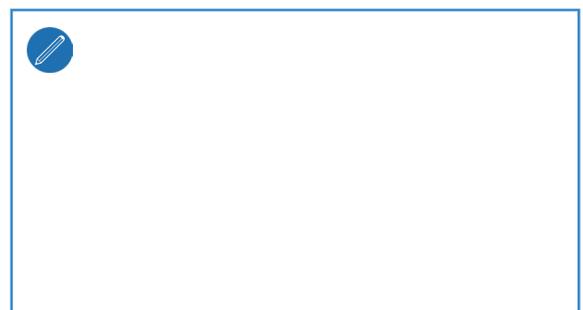
    ☐ Never

9. Dividing is harder than multiplying

☐ Always

☐ Sometimes

☐ Never

10. To multiply by 10 just add a zero

☐ Always

☐ Sometimes
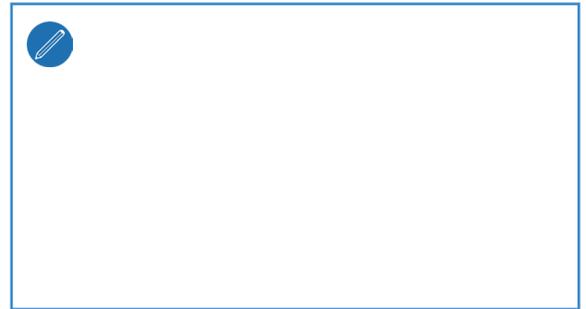
☐ Never

11. There are four different methods of multiplying

☐ Always
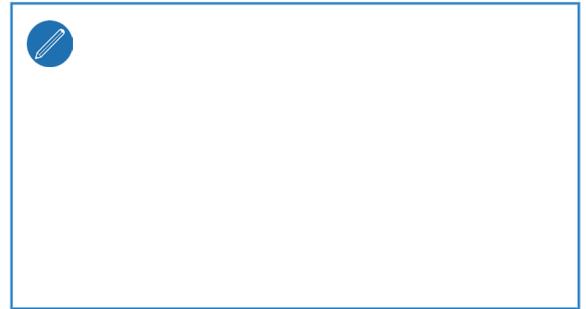
☐ Sometimes

☐ Never

12. Multiplying is faster than dividing

☐ Always

☐ Sometimes

☐ Never

13. The order in which you multiply two numbers
    does not change the answer

    ☐ Always

    ☐ Sometimes

    ☐ Never

14. If a number ends in 0 it divides exactly by 2

    ☐ Always

    ☐ Sometimes

    ☐ Never

15. The seven times table is 50% odd and 50% even

    ☐ Always

    ☐ Sometimes

    ☐ Never

16. The products of the five times table are odd

    ☐ Always

    ☐ Sometimes

    ☐ Never

17. Multiplying by 8 is the same as multiplying by
    4 and doubling

☐ Always

☐ Sometimes

☐ Never

18. In the nine times table the sum of the digits
    always makes 9

☐ Always

☐ Sometimes

☐ Never

19. Multiplying a negative number by a positive
    number always increases the first number

☐ Always

☐ Sometimes

☐ Never

20. Multiplying a positive number by a number
    between 0 and 1 always increases the number

☐ Always

☐ Sometimes

☐ Never

21. Multiplying a positive number by a number greater than 1 always increases the number

- [ ] Always

- [ ] Sometimes

- [ ] Never

Were there any statements that you found a challenge?

Why not look online for any words that you don't recognise.

Share your ideas with the rest of the class.

Always, Sometimes, Never Questions: **Triangles**

Please tick your answer to each question, and use the box on the right to explain the reasons why you think your answer is correct.

Are the following statements always, sometimes, or never true? What do you think?

1. At least two angles of a triangle are 90 degrees (or less)

   ☐ Always

   ☐ Sometimes

   ☐ Never

2. A right-angled triangle has no lines of symmetry

   ☐ Always

   ☐ Sometimes

   ☐ Never

3. An equilateral triangle has three sides of similar size

   ☐ Always

   ☐ Sometimes
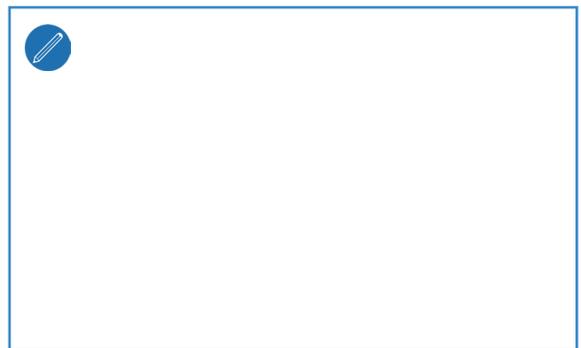
   ☐ Never

4. The longest side is opposite the smallest angle

☐ Always

☐ Sometimes

☐ Never

5. A scalene triangle has three acute angles

☐ Always
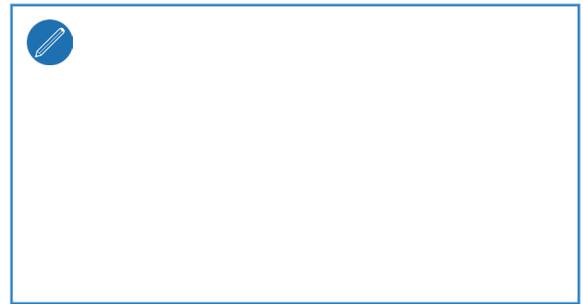
☐ Sometimes

☐ Never

6. All the angles in a regular triangle are congruent

☐ Always

☐ Sometimes
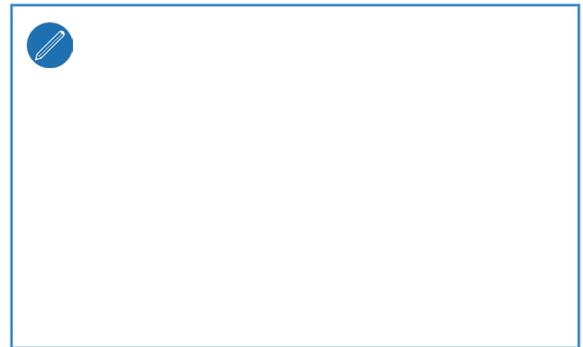
☐ Never

7. There are three types of right-angled triangle

☐ Always

☐ Sometimes
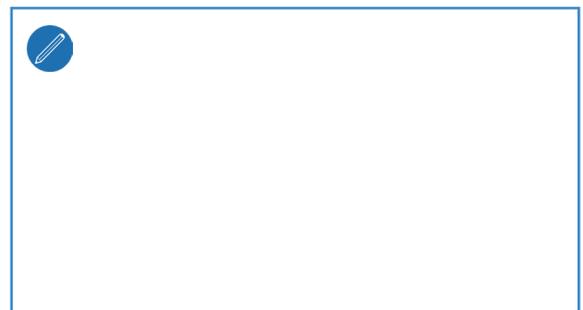
☐ Never

8. An obtuse triangle can have two obtuse angles

☐ Always

☐ Sometimes

☐ Never

9. An isosceles triangle has three angles of 60°

☐ Always

☐ Sometimes
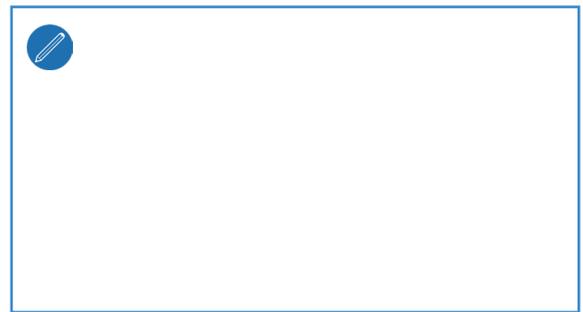
☐ Never

10. A triangle can be either obtuse, acute or right-angled

☐ Always

☐ Sometimes

☐ Never

11. All triangles have six angles

☐ Always

☐ Sometimes
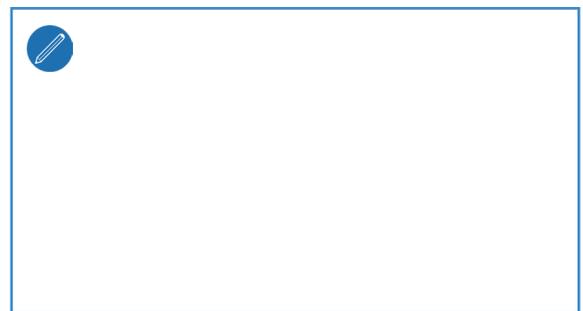
☐ Never

12. The longest side of any triangle is called its hypotenuse

    ☐ Always

    ☐ Sometimes

    ☐ Never

13. An equilateral triangle is made up of 9 smaller acute-angled triangles

    ☐ Always

    ☐ Sometimes

    ☐ Never

14. A right-angled triangle has one rectangular angle

    ☐ Always

    ☐ Sometimes

    ☐ Never

15. All the angles of an equilateral triangle are acute

    ☐ Always

    ☐ Sometimes

    ☐ Never

16. All the angles of an obtuse triangle are obtuse

    ☐ Always

    ☐ Sometimes

    ☐ Never

17. The angles at the base of a triangle are equal to each other

    ☐ Always

    ☐ Sometimes
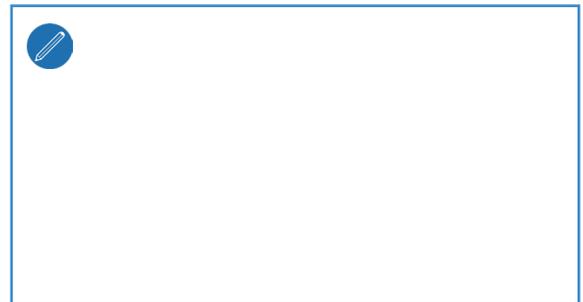
    ☐ Never

18. An equilateral triangle has only 2 lines of symmetry

    ☐ Always
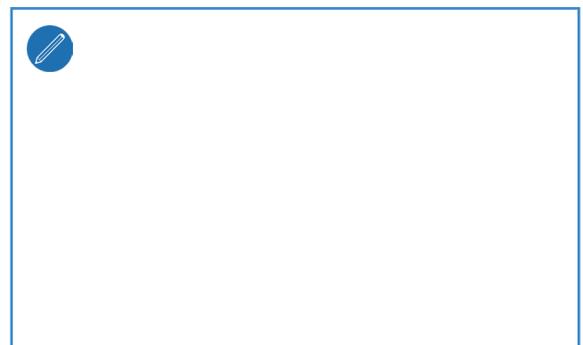
    ☐ Sometimes

    ☐ Never

19. The angles of an isosceles triangle are all different

    ☐ Always

    ☐ Sometimes
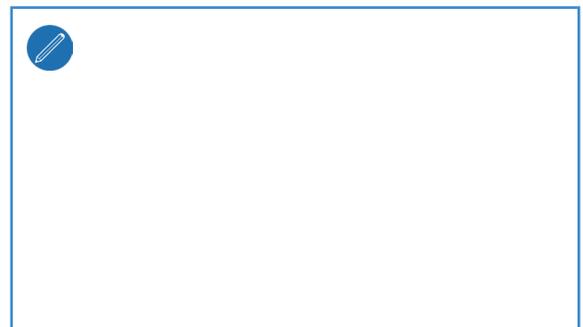
    ☐ Never

20. Three angles of a triangle will equal two right-angles

☐ Always

☐ Sometimes

☐ Never

21. An isosceles triangle has at least one right-angle

☐ Always

☐ Sometimes
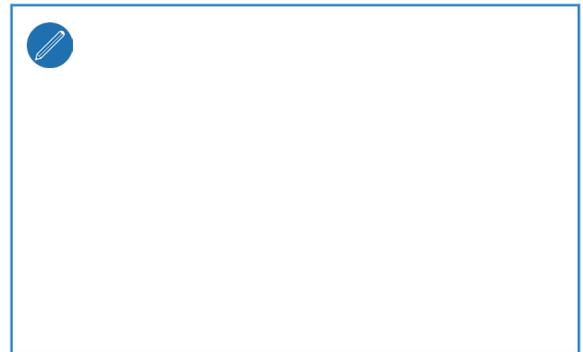
☐ Never

22. A scalene triangle has three acute angles

☐ Always
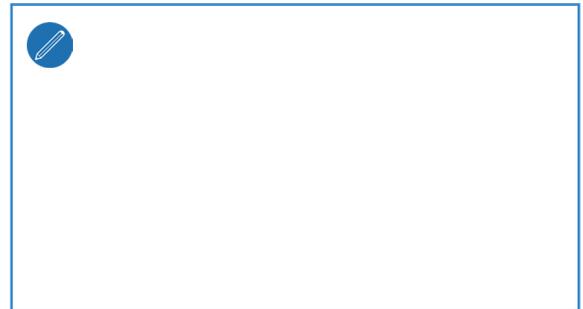
☐ Sometimes

☐ Never

23. A triangle must have at least one acute angle

☐ Always

☐ Sometimes
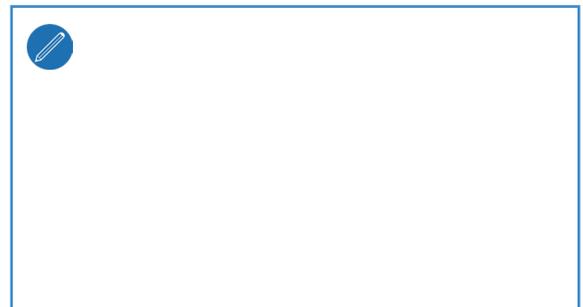
☐ Never

24. A triangle can have more than one obtuse angle

☐ Always

☐ Sometimes

☐ Never

25. All triangles are congruent but not similar

☐ Always

☐ Sometimes

☐ Never

26. An equilateral triangle is also equiangular

☐ Always

☐ Sometimes

☐ Never

27. An equilateral triangle is also isosceles

☐ Always

☐ Sometimes

☐ Never

28. In any triangle, the greater side is opposite the greater angle

☐ Always

☐ Sometimes

☐ Never

Were there any statements that you found a challenge?

Why not look online for any words that you don't recognise.

Share your ideas with the rest of the class.

Always, Sometimes, Never Questions: **Fractions**

Please tick your answer to each question, and use the box on the right to explain the reasons why you think your answer is correct.

Are the following statements always, sometimes, or never true? What do you think?

1. A fraction always has three parts

☐ Always

☐ Sometimes
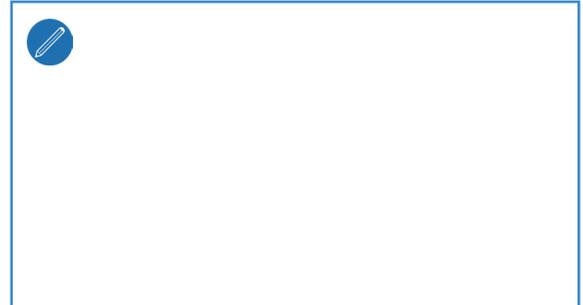
☐ Never

2. A denominator is the dividend of a fraction

☐ Always
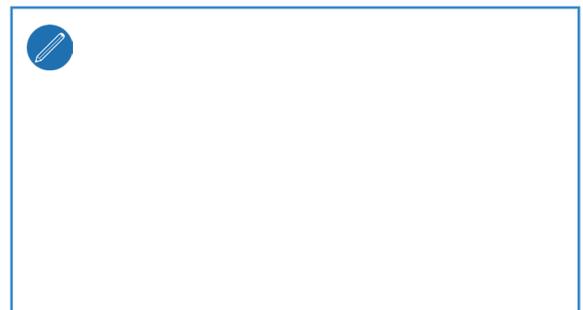
☐ Sometimes

☐ Never

3. A numerator is always a positive integer

☐ Always

☐ Sometimes

☐ Never

4. A numerator denotes the number of parts

☐ Always

☐ Sometimes

☐ Never

5. A denominator can sometimes be a decimal number

☐ Always

☐ Sometimes
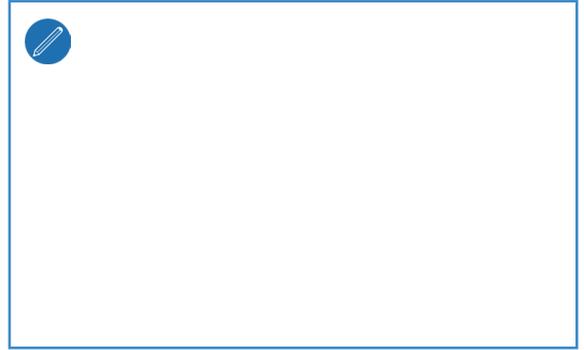
☐ Never

6. A numerator can be zero

☐ Always

☐ Sometimes
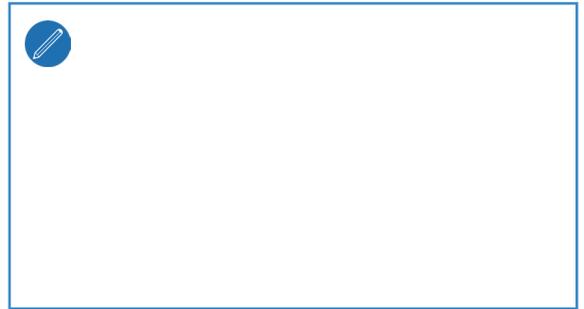
☐ Never

7. A denominator can be a negative number

☐ Always

☐ Sometimes

☐ Never

8. A proportion is another way of expressing a fraction

☐ Always
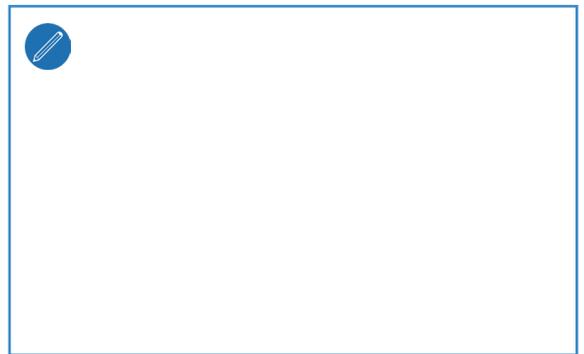
☐ Sometimes

☐ Never

9. In a common fraction the numerator is written above the line

☐ Always

☐ Sometimes
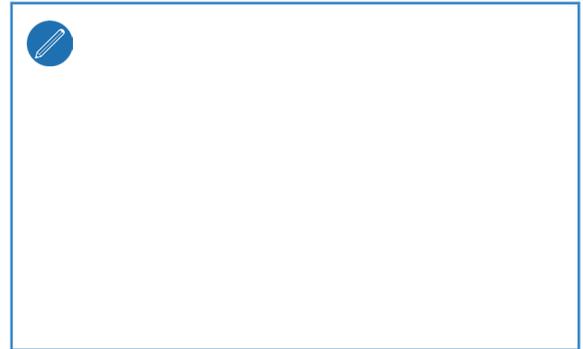
☐ Never

10. The smaller the denominator the bigger the fraction

☐ Always

☐ Sometimes
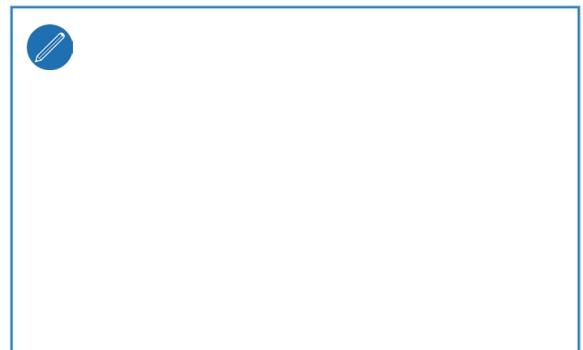
☐ Never

11. The vinculum is the line dividing the numerator and denominator

☐ Always
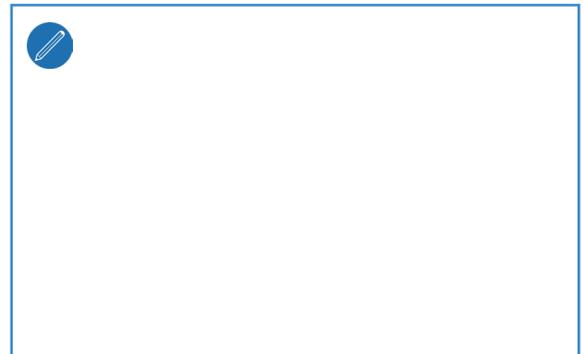
☐ Sometimes

☐ Never

12. A mixed number is both a whole number and an improper fraction

☐ Always

☐ Sometimes

☐ Never

13. An integer can be expressed as a fraction by dividing by 1

☐ Always

☐ Sometimes

☐ Never

14. The quotient is the denominator part of a mixed fraction

☐ Always

☐ Sometimes

☐ Never

15. An improper fraction is a fraction where the numerator is larger than the denominator

☐ Always

☐ Sometimes

☐ Never

16. An improper fraction can be converted into a mixed number by division

☐ Always

☐ Sometimes

☐ Never

17. A proper fraction is a fraction where the value of the denominator is smaller than the numerator

☐ Always

☐ Sometimes

☐ Never

Were there any statements that you found a challenge?

Why not look online for any words that you don't recognise.

Share your ideas with the rest of the class

Always, Sometimes, Never Questions: **Square Numbers**

Please tick your answer to each question, and use the box on the right to explain the reasons why you think your answer is correct.

Are the following statements always, sometimes, or never true? What do you think?

1. To square any number, multiply by 2

   ☐ Always

   ☐ Sometimes
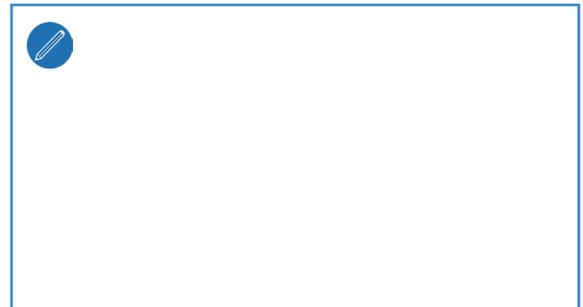
   ☐ Never

2. A square number is always 1 more than a triangle number

   ☐ Always

   ☐ Sometimes

   ☐ Never

3. If you add three primes together you will always make a square number

   ☐ Always
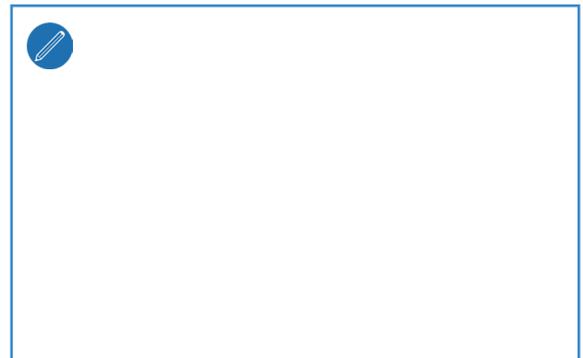
   ☐ Sometimes

   ☐ Never

4. Square numbers end in 0,1,4,5 or 9

   ☐ Always

   ☐ Sometimes

   ☐ Never

5. If you subtract a square number from the next square you will always get a prime

- [ ] Always
- [ ] Sometimes
- [ ] Never

6. If you multiply two consecutive numbers together you always make a square number

- [ ] Always
- [ ] Sometimes
- [ ] Never

7. Square numbers are composite numbers

- [ ] Always
- [ ] Sometimes
- [ ] Never

8. A square number is bigger than a triangle number

- [ ] Always
- [ ] Sometimes
- [ ] Never

9. A square number is twice as big as the original number

☐ Always

☐ Sometimes
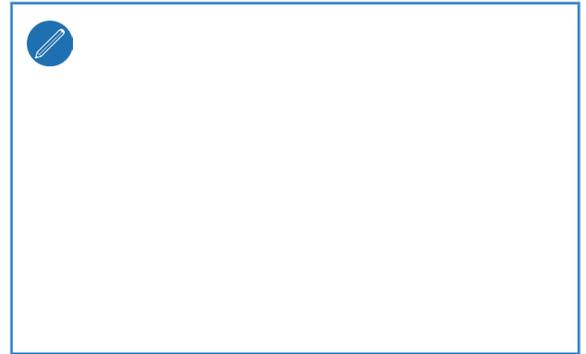
☐ Never

Were there any statements that you found a challenge?

Why not look online for any words that you don't recognise.

Share your ideas with the rest of the class.

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Always, Sometimes, Never Questions: **General**

Please tick your answer to each question, and use the box on the right to explain the reasons why you think your answer is correct.

Are the following statements always, sometimes, or never true? What do you think?

1. When you cut a piece off a shape, you reduce its area and perimeter

   ☐ Always
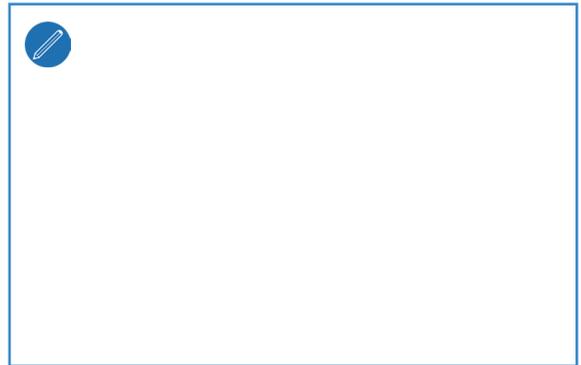
   ☐ Sometimes

   ☐ Never

2. When you cut a shape and rearrange the pieces, the area and the perimeter stay the same

   ☐ Always

   ☐ Sometimes

   ☐ Never

3. All squares are rectangles

   ☐ Always

   ☐ Sometimes
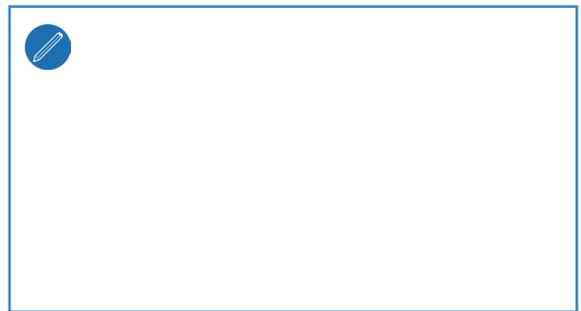
   ☐ Never

4. An equilateral triangle is also isosceles

☐ Always

☐ Sometimes

☐ Never

5. A triangle can have 2 obtuse angles

☐ Always

☐ Sometimes

☐ Never

6. The diagonals of a rectangle cross at right-angles

☐ Always

☐ Sometimes

☐ Never

7. When you double the side of a square you double the area

☐ Always

☐ Sometimes

☐ Never

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8. A parallelogram has rotational symmetry order of 4

    ☐ Always

    ☐ Sometimes

    ☐ Never

9. The largest side of a triangle is shorter than the sum of the lengths of the other 2 sides

    ☐ Always

    ☐ Sometimes

    ☐ Never

10. If 2 rectangles both have the same area, they must also have the same perimeter

    ☐ Always

    ☐ Sometimes

    ☐ Never

11. A rhombus is a parallelogram

    ☐ Always

    ☐ Sometimes

    ☐ Never

12. A circle is not a polygon

  ☐ Always

  ☐ Sometimes

  ☐ Never

13. An oblong is also an ellipse

  ☐ Always

  ☐ Sometimes

  ☐ Never

14. Pyramids are prisms

  ☐ Always

  ☐ Sometimes
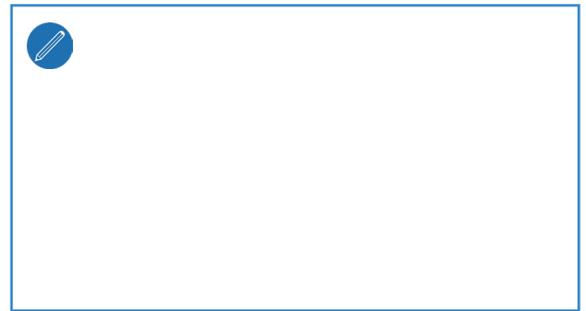
  ☐ Never

15. If a square and a rectangle have the same perimeter, the square has the smaller area

  ☐ Always

  ☐ Sometimes
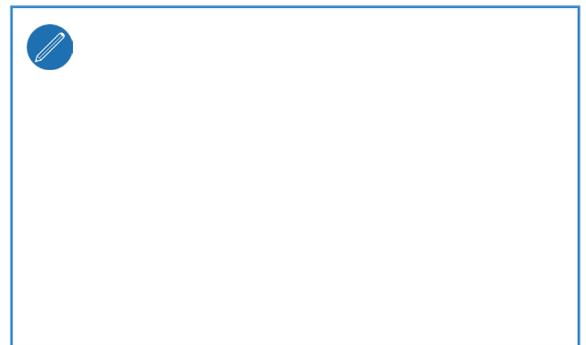
  ☐ Never

16. A pyramid can have less than four triangular surfaces

☐ Always

☐ Sometimes

☐ Never

17. Half a circle is a semi-circle

☐ Always

☐ Sometimes
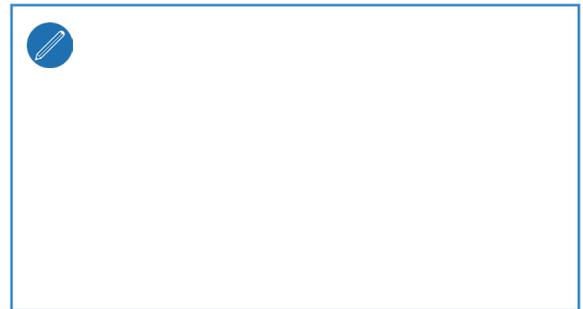
☐ Never

Were there any statements that you found a challenge?

Why not look online for any words that you don't recognise.

Share your ideas with the rest of the class.

Answers To The 108 Always, Sometimes, Never Maths Questions

Below you'll find our answers to the questions in this resource.

However, please note that whilst these are the answers we have provided, these are the type of questions that will likely spark a fierce debate in your classroom so be prepared to hear a number of varying opinions!

If the children in your class provide you with any answers that have made their classmates (or even yourself) think in greater depth, then why not pose that particular question on our Facebook page and open the debate up to thousands of other teachers!

Answers To The Always, Sometimes, Never Questions On
Squares

1. There are 64 squares on a 8 x 8 chessboard   **Always**
2. A square is also a rhombus   **Always**
3. A square is smaller than a rectangle   **Sometimes**
4. A square an be split into two triangles   **Always**
5. A square has 8 angles   **Never (Accounting for internal angles only)**
6. The diagonals of a square are longer than its sides   **Always**
7. You can never have an irregular square   **Always**
8. A square has four congruent edges   **Always**
9. The angles of a square add up to 90 degrees   **Never**
10. A square is half a rectangle   **Sometimes**
11. A square is an equilateral tetragon   **Always**
12. A square is never concave   **Always**
13. A square can also be a kite   **Never**
14. The diagonals of a square are the same as its sides   **Never**
15. A square is a rectangle   **Always**
16. A rectangle is a square   **Sometimes**

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Answers To The Always, Sometimes, Never Questions On **X and -:-**

1.	Multiplying is the same as adding	**Sometimes**
2.	Multiplying a number makes it bigger	**Sometimes**
3.	Dividing a number makes it smaller	**Sometimes**
4.	Dividing is the same as subtracting	**Sometimes (Repeated subtraction)**
5.	A number can be multiplied by zero	**Always**
6.	It doesn't matter which numbers come first when we divide	**Sometimes**
7.	If a number ends in 0 it divides exactly by 10	**Always**
8.	A multiple of 3 is a multiple of 6	**Sometimes**
9.	Dividing is harder than multiplying	**Sometimes**
10.	To multiply by 10 just add a zero	**Never**
11.	There are four different methods of multiplying	**Refer to explanation**
12.	Multiplying is faster than dividing	**Sometimes**
13.	The order in which you multiply two numbers does not change the answer	**Always**
14.	If a number ends in 0 it divides exactly by 2	**Always**
15.	The seven times table is 50% odd and 50% even	**Always**
16.	The products of the five times table are odd	**Never**
17.	Multiplying by 8 is the same as multiplying by 4 and doubling	**Always**
18.	In the nine times table the sum of the digits makes 9	**Sometimes**
19.	Multiplying a negative number by a positive number always increases the first number	**Never**
20.	Multiplying a positive number by a number between 0 and 1 always increases the number	**Never**
21.	Multiplying a positive number by a number greater than 1 always increases the number	**Always**

Answers To The Always, Sometimes, Never Questions On
Triangles

1. At least two angles of a triangle are 90 degrees — **Never**
2. A right-angled triangle has no lines of symmetry — **Sometimes**
3. An equilateral triangle has three sides of similar size — **Never**
4. The longest side is opposite the smallest angle — **Never**
5. A scalene triangle has three acute angles — **Sometimes**
6. All the angles in a regular triangle are congruent — **Always**
7. There are three types of right-angled triangle — **Never**
8. An obtuse triangle can have two obtuse angles — **Never**
9. An isosceles triangle has three angles of 60° — **Sometimes**
10. A triangle can be classified as either obtuse, acute or right-angled — **Always**
11. All triangles have six angles — **Never (Internal angles only)**
12. The longest side of a triangle is called its hypotenuse — **Sometimes**
13. An equilateral triangle is made up of 9 smaller acute-angled triangles — **Sometimes**
14. A right-angled triangle has one rectangular angle — **Always**
15. All the angles of an equilateral triangle are acute — **Always**
16. All the angles of an obtuse triangle are obtuse — **Never**
17. The angles at the base of a triangle are equal to each other — **Sometimes**
18. An equilateral triangle has only 2 lines of symmetry — **Never**
19. The angles of an isosceles triangle are all different — **Never**
20. Three angles of a triangle will equal two right-angles — **Always**
21. An isosceles triangle has at least one right-angle — **Sometimes**
22. A scalene triangle has three acute angles — **Sometimes**
23. A triangle must have at least one acute angle — **Always**
24. A triangle can have more than one obtuse angle — **Never**
25. All triangles are congruent but not similar — **Never**
26. An equilateral triangle is also equiangular — **Always**
27. An equilateral triangle is also isosceles — **Always**
28. In any triangle, the greater side is opposite the greater angle — **Always**

Answers To The Always, Sometimes, Never Questions On
Fractions

1.	A fraction always has three parts	**Sometimes**
2.	A denominator is the dividend of a fraction	**Never**
3.	A numerator is always a positive integer	**Sometimes**
4.	A numerator denotes the number of parts	**Always**
5.	A denominator can sometimes be a decimal number	**Never**
6.	A numerator can be zero	**Never**
7.	A denominator can be a negative number	**Sometimes**
8.	A proportion is another way of expressing a fraction	**Sometimes**
9.	In a common fraction the numerator is written above the line	**Always**
10.	The smaller the denominator the bigger the fraction	**Sometimes**
11.	The vinculum is the line dividing the numerator and denominator	**Always**
12.	A mixed number is both a whole number and an improper fraction	**Never**
13.	An integer can be expressed as a fraction by dividing by 1	**Always**
14.	The quotient is the denominator part of a mixed fraction	**Never**
15.	An improper fraction is a fraction where the numerator is larger than the denominator	**Always**
16.	An improper fraction can be converted into a mixed number by division	**Always**
17.	A proper fraction is a fraction where the value of the denominator is smaller than the numerator	**Never**

Answers To The Always, Sometimes, Never Questions On
Square Numbers

1. To square any number multiply by 2 **Sometimes**

2. A square number is always 1 more than a triangle number **Sometimes**

3. If you add three primes together you will make a square number **Sometimes**

4. Square numbers end in 0,1,4,5 or 9 **Sometimes**

5. If you subtract a square number from the next square you will get a prime **Sometimes**

6. If you multiply two consecutive numbers together you always make a square **Never**

7. All square numbers are composite numbers **Always**

8. A square number is bigger than a triangle number **Sometimes**

9. A square number is twice as big as the original number **Sometimes**

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Answers To The Always, Sometimes, Never Questions On
General Topics

1. When you cut a piece off a shape, you reduce its area and perimeter **Sometimes**

2. When you cut a shape and rearrange the pieces, the area and the perimeter stay the same **Sometimes**

3. All squares are rectangles **Always**

4. An equilateral triangle is also isosceles **Always**

5. A triangle can have 2 obtuse angles **Never**

6. The diagonals of a rectangle cross at right-angles **Sometimes**

7. When you double the side of a square you double the area **Never**

8. A parallelogram has rotational symmetry order of 4 **Sometimes**

9. The largest side of a triangle is shorter than the sum of the lengths of the other 2 sides **Sometimes**

10. If 2 rectangles both have the same area, they must also have the same perimeter **Sometimes**

11. A rhombus is a parallelogram **Always**

12. A circle is not a polygon **Always**

13. An oblong is also an ellipse **Never**

14. Pyramids are prisms **Never**

15. If a square and a rectangle have the same perimeter, the square has the smaller area **Never**

16. A pyramid can have less than four triangular surfaces **Never**

17. Half a circle is a semi-circle **Always**

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