Interior and Exterior angles of regular polygons GREEN

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of regular polygon | Number of Sides | Size of exterior angle | Sum of all interior angles | Size of interior angle |
| Equilateral triangle |  |  |  |  |
| Square |  |  |  |  |
| Pentagon |  |  |  |  |
| Hexagon |  |  |  |  |
| Heptagon |  |  |  |  |
| Octagon |  |  |  |  |
| Nonagon |  |  |  |  |
| Decagon |  |  |  |  |
| $n$-sided polygon |  |  |  |  |

Interior and Exterior angles of regular polygons GREEN

|  |  |  |  |  |
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| Nonagon |  |  |  |  |
| Decagon |  |  |  |  |
| $n$-sided polygon |  |  |  |  |

Interior and Exterior angles of regular polygons AMBER

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of regular polygon | Number of Sides | Size of exterior angle | Sum of all interior angles | Size of interior angle |
| Equilateral triangle | $$3$$ | $360°÷3=\\_\\_\\_\\_\\_$  | $1×180°=\\_\\_\\_\\_\\_\\_\\_\\_$  | \_\_\_\_\_$÷3=$ |
| Square | $$4$$ |  |  |  |
| Pentagon | $$5$$ |  |  |  |
| Hexagon |  |  |  |  |
| Heptagon |  |  |  |  |
| Octagon |  |  |  |  |
| Nonagon |  |  |  |  |
| Decagon |  |  |  |  |
| $n$-sided polygon | $$n$$ |  |  |  |

Interior and Exterior angles of regular polygons AMBER

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of regular polygon | Number of Sides | Size of exterior angle | Sum of all interior angles | Size of interior angle |
| Equilateral triangle | $$3$$ | $360°÷3=\\_\\_\\_\\_\\_$  | $1×180°=\\_\\_\\_\\_\\_\\_\\_\\_$  | \_\_\_\_\_$÷3=$ |
| Square | $$4$$ |  |  |  |
| Pentagon | $$5$$ |  |  |  |
| Hexagon |  |  |  |  |
| Heptagon |  |  |  |  |
| Octagon |  |  |  |  |
| Nonagon |  |  |  |  |
| Decagon |  |  |  |  |
| $n$-sided polygon | $$n$$ |  |  |  |

Interior and Exterior angles of regular polygons RED

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of regular polygon | Number of Sides | Size of exterior angle | Sum of all interior angles | Size of interior angle |
| Equilateral triangle | $$3$$ | $360°÷3=\\_\\_\\_\\_\\_$  | $1×180°=\\_\\_\\_\\_\\_\\_\\_\\_$  | \_\_\_\_\_$÷3=\\_\\_\\_\\_\\_$ |
| Square | $$4$$ | $360°÷4=\\_\\_\\_\\_\\_$  | $2×180°=\\_\\_\\_\\_\\_\\_\\_\\_$  | \_\_\_\_\_$÷4=\\_\\_\\_\\_\\_$ |
| Pentagon | $$5$$ |  |  |  |
| Hexagon |  |  |  |  |
| Heptagon |  |  |  |  |
| Octagon |  |  |  |  |
| Nonagon |  |  |  |  |
| Decagon |  |  |  |  |
| $n$-sided polygon | $$n$$ | $360°÷\\_\\_\\_\\_$  | $\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_×180°$  | $\\_\\_\\_\\_\\_\\_\\_\\_÷\\_\\_\\_\\_$  |

Interior and Exterior angles of regular polygons RED

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of regular polygon | Number of Sides | Size of exterior angle | Sum of all interior angles | Size of interior angle |
| Equilateral triangle | $$3$$ | $360°÷3=\\_\\_\\_\\_\\_$  | $1×180°=\\_\\_\\_\\_\\_\\_\\_\\_$  | \_\_\_\_\_$÷3=\\_\\_\\_\\_\\_$ |
| Square | $$4$$ | $360°÷4=\\_\\_\\_\\_\\_$  | $2×180°=\\_\\_\\_\\_\\_\\_\\_\\_$  | \_\_\_\_\_$÷4=\\_\\_\\_\\_\\_$ |
| Pentagon | $$5$$ |  |  |  |
| Hexagon |  |  |  |  |
| Heptagon |  |  |  |  |
| Octagon |  |  |  |  |
| Nonagon |  |  |  |  |
| Decagon |  |  |  |  |
| $n$-sided polygon | $$n$$ | $360°÷\\_\\_\\_\\_$  | $\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_×180°$  | $\\_\\_\\_\\_\\_\\_\\_\\_÷\\_\\_\\_\\_$  |

Interior and Exterior angles of regular polygons EXTENSION

1. What is the size of an exterior angle on a regular 20-sided shape?

2. What is the size of an exterior angle on a regular 18-sided shape?

3. What is the size of an interior angle on a regular 15 sided shape?

4. What is the size of an interior angle on a regular 12 sided shape?

5. What is the total of all the angles in a 12 sided shape?

6. What is the total of all the angles in a 21 sided shape?

7. A regular polygon has exterior angles of size 18 degrees, how many sides does it have?

8. A regular polygon has exterior angles of size 4 degrees, how many sides does it have?

9. A regular polygon has an interior angle of 171 degrees. What is the exterior angle and hence, how many sides does the polygon have?

10. A regular polygon has an interior angle of 157.5 degrees. What is the exterior angle and hence, how many sides does the polygon have?

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