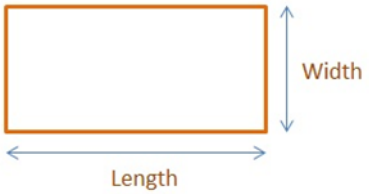
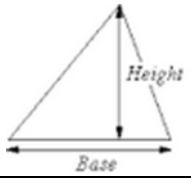
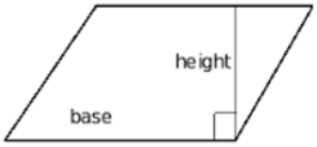
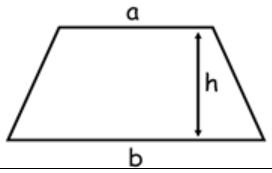
Year 9&10 – Maths Foundation knowledge & answers

1. What is the formula for the area of a rectangle/square? 	**Area = length × width**
2. What is the formula for the area of a triangle? 	**Area = ½ × base × height**
3. What is the formula for the area of a parallelogram/rhombus? 	**Area = base × height**
4. What is the formula for the area of a circle?	**Area = πr^2**
5. What is the formula for the area of a trapezium? 	**Area = $\frac{1}{2}(a + b)h$**
6. What is the formula for the circumference of a circle?	**Circumference = πD**
7. What are the first 12 prime numbers?	**2,3,5,7,11,13,17,19,23,29,31,37**
8. What are the first 15 square numbers?	**1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225**
9. What are the first 5 cube numbers?	**1, 8, 27, 64, 125**
10. What is Pythagoras' Theorem? 	**$a^2 + b^2 = c^2$**
11. How do you find the volume of	**Volume = area of cross-section × length**

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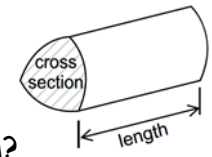
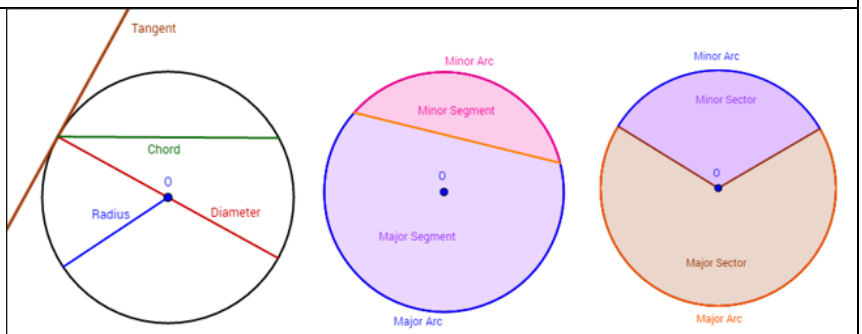
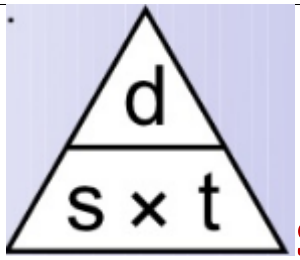
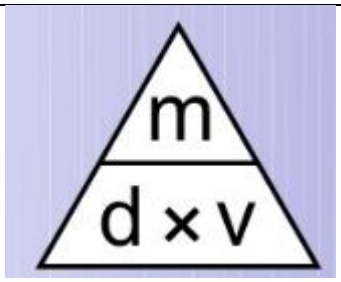
 a prism?	
12. Draw and label all the parts of a circle. Including radius, diameter, chord, tangent, sector, arc & segment.	
13. What is the formula for speed?	 **speed= $\frac{distance}{time}$**
14. What is the formula for density?	 **Density= $\frac{mass}{volume}$**
15. What are the properties of a rectangle?	• Two pairs of equal sides • Four right angles • Opposite sides parallel • Diagonals bisect each other • Two lines of symmetry • Rotational symmetry of order two
16. What are the properties of a square?	• Four equal sides • Four right angles • Opposite sides parallel • Diagonals bisect each other at right angles • Four lines of symmetry • Rotational symmetry of order four
17. What are the properties of a rhombus?	• Four equal sides • Two pairs of equal angles • Opposite sides parallel • Diagonals bisect each other at right angles • Two lines of symmetry • Rotational symmetry of order two
18. What are the properties of a kite?	Two pairs of adjacent sides of equal length One pair of equal angles

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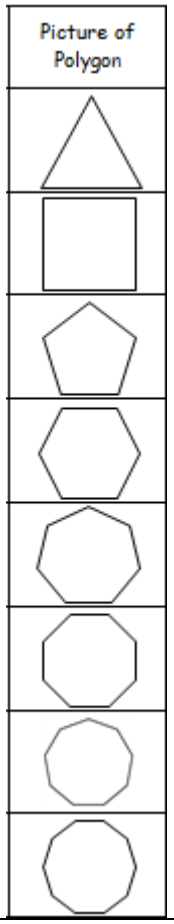
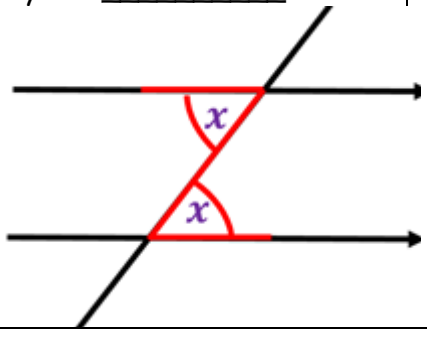
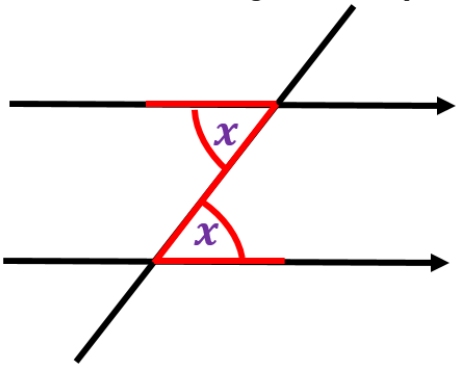
	Diagonals intersect at right angles One line of symmetry No rotational symmetry
19. What are the properties of a trapezium?	One pair of parallel sides Isosceles quadrilaterals of this kind have one line of symmetry otherwise no lines of symmetry. Trapeziums never have rotational symmetry.
20. How do you find the exterior angle of a regular polygon?	360 ÷ number of sides
21. Write the name, interior angle & sum of interior angles for each shape. 	

Number of Sides	Name of Polygon	Picture of Polygon	Interior angle of a regular polygon	Sum of the interior Angles
3	Triangle		60°	180°
4	Quadrilateral		90°	360°
5	Pentagon		108°	540°
6	Hexagon		120°	720°
7	Heptagon		128.6°	900°
8	Octagon		135°	1080°
9	Nonagon		140°	1260°
10	Decagon		144°	1440°

22. These angles are called_____ angles and they are _____.



Alternate angles are equal



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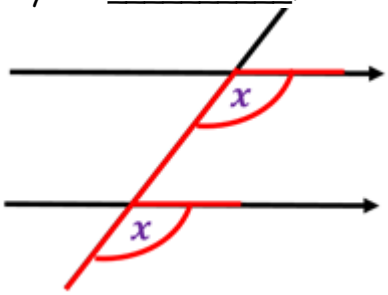
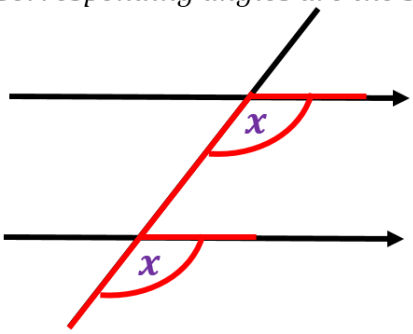
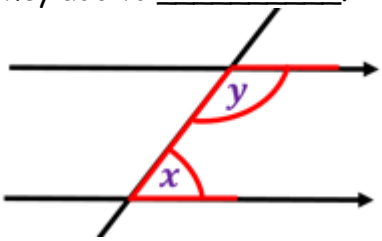
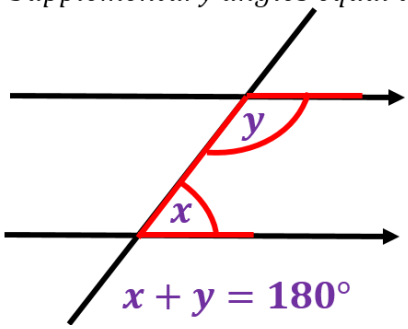
23. These angles are called_____ angles and they are _____.  	*Corresponding angles are the same.* 
24. These angles are called_____ angles and they add to _____.  	*Supplementary angles equal to* 180°  $x + y = 180°$
25. Match the following terms to the below definitions: Mean, Mode, Range, Median A. The middle value when all terms are placed in numerical order. B. Calculated by finding the sum of the numbers and dividing by how many terms there are. C. The difference between the largest and smallest terms. D. The most frequently appearing term	**A. The middle value when all terms are placed in numerical order. Median** **B. Calculated by finding the sum of the numbers and dividing by how many terms there are. Mean** **C. The difference between the largest and smallest terms. Range** **D. The most frequently appearing term Mode**
26.	