SHARP

Worksheet 11: Geometry of 2D Shapes

Grade 9

1. Give the definition of each of these shapes:

a)	right-angled triangle	b)	isosceles triangle
c)	equilateral triangle	d)	scalene triangle
e)	rectangle	f)	square
g)	rhombus	h)	trapezium
i)	parallelogram	j)	kite
k)	similar	l)	congruent

2. Name each of the following shapes based on these descriptions:

a) Four equal sides and opposite angles equal.

b) Triangle with three angles equal

c) Quadrilateral with opposite sides equal and all angles equal to 90˚

d) Quadrilateral with opposite sides parallel

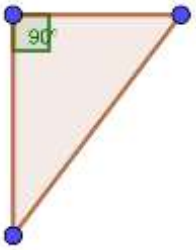
e) Quadrilateral with adjacent sides equal and opposite angles

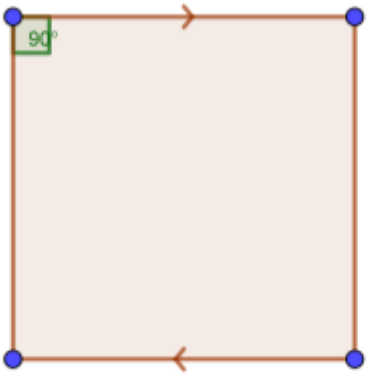
f) A triangle with two equal sides

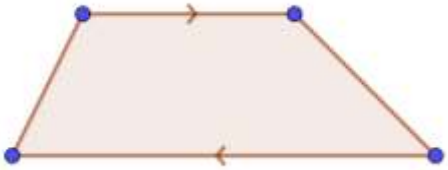
g) A triangle with three different angles.

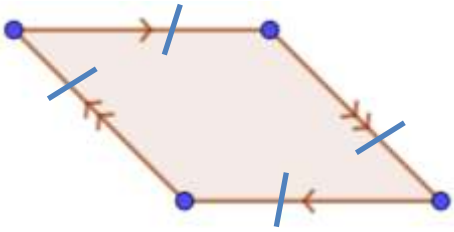
h) Quadrilateral with one set of sides parallel

3. Look at each of the shapes below and name them based on their properties

a) 

b) 

c) 

d) 

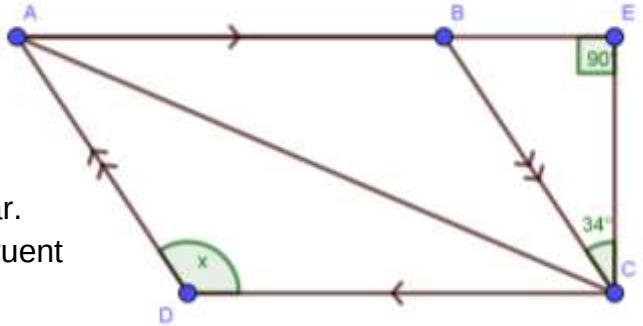
4. What is the sum of interior angles for a

a) triangle?

b) quadrilateral?

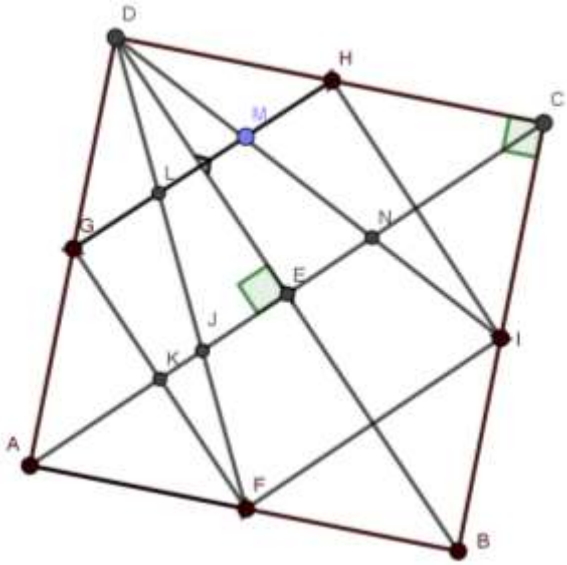
5. Study the diagram below carefully before answering the questions.

Quadrilateral ABCD is a parallelogram. Triangle BCE is a right-angled triangle.



a) Find the value of $A\hat{B}C$.
b) Find the value of x.
c) Prove that ΔABC and ΔADC are similar.
d) Prove that ΔABC and ΔADC are congruent
e) What shape is quadrilateral AECD?
f) Is EC parallel to AD? Give a reason for your answer.
g) Find the value of $D\hat{A}B$.

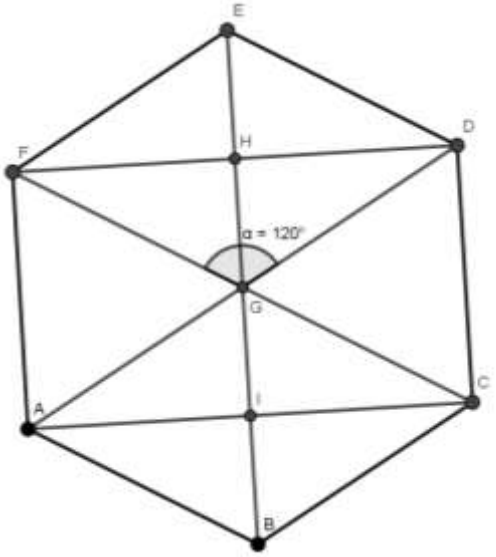
6. Study the diagram below carefully before answering the questions.



In the quadrilateral ABCD, all four sides are equal and parallel. Points H, I, F and G are all the midpoints.

a) How many squares are in the diagram?
b) Name four isosceles triangles.
c) Name four right-angled triangles.
d) Name a kite
e) Are ΔDGF and ΔDHI congruent? Give reasons.
f) Name two trapeziums.

7. Study the diagram below carefully before answering the questions.



In the diagram alongside, ABCDEF is a regular hexagon (that means all the sides are equal). Point G is the midpoint of CF and AD and BE. The angle $F\hat{G}D = 120°$.

a) What is the size of $A\hat{G}F$?
b) Is ΔAGF an equilateral triangle? Give reasons.
c) Prove that FEDG is a rhombus
d) Prove that EDCF is a trapezium
e) Prove that AFDC is a rectangle.
f) Is AFHI a square or a rectangle? Give a reason for your answer.

8. Bonus: How many squares are in the picture below?