PENANG SANGAM HIGH SCHOOL

WORKSHEET 7

YEAR 10 MATHEMATICS

STRAND 4: GEOMETRY

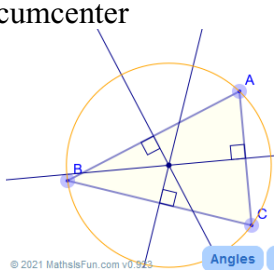
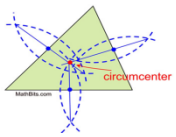
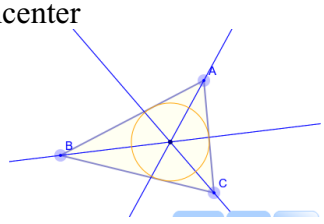
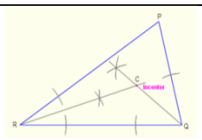
SUB STRAND: CONSTRUCTION

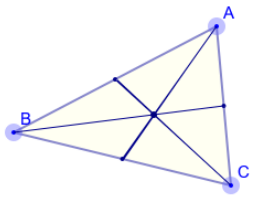
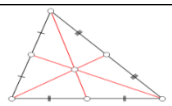
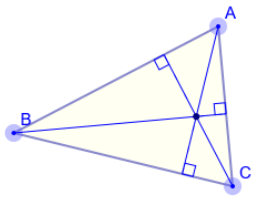
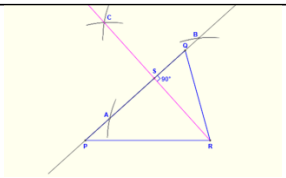
LEARNING OUTCOMES

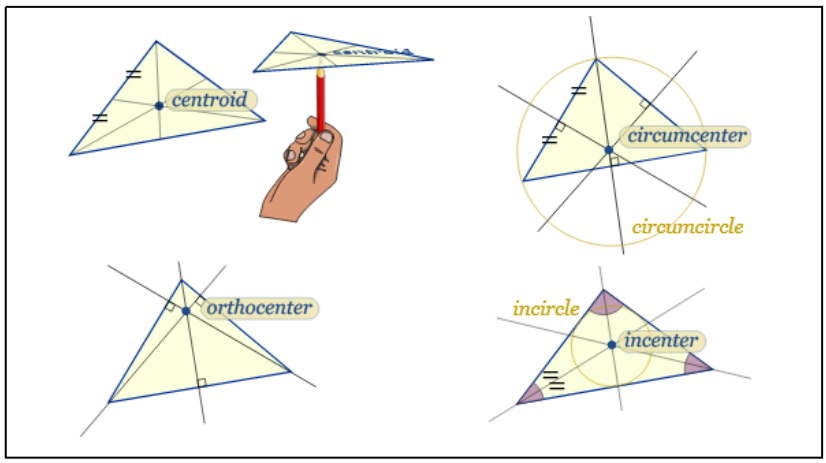
- Explain the properties of different centers of triangles.

CONSTRUCTING CENTERS OF TRIANGLE

Peter Carried An Important Message Calling All Officers.(PCAIMCAO)

	Center	Constructions
Perpendicular Bisector Draw a line (called a "perpendicular bisector") at right angles to the midpoint of each side. Where all three lines intersect is the center of a triangle's "circumcircle", called the "circumcenter":	Circumcenter 	
Angle Bisector Draw a line (called the "angle bisector") from a corner so that it splits the angle in half Where all three lines intersect is the center of a triangle's "incircle", called the "incenter":	Incenter 	

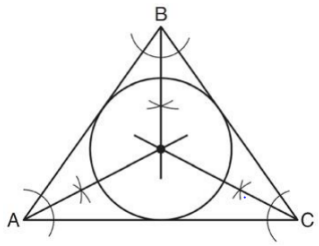
Median Draw a line (called a "median") from each corner to the midpoint of the opposite side. Where all three lines intersect is the centroid, which is also the "center of mass":	Centroid 	
Altitude Draw a line segment (called the "altitude") at right angles to a side that goes to the opposite corner. Where all three lines intersect is the "orthocenter"	Orthocenter 	



Exercise

		Solution
1	Write True or False (a) The angle bisectors of a scalene triangle intersect outside the triangle _____ (b) The altitude from the vertex angle of an isosceles triangle is always the median__ (c) To find the point that is equidistant from the sides, find the circumcenter _____ (d) The median starts at a vertex and goes to the opposite midpoint _____	

2. Which principle is used in the construction shown below?



A. The intersection of the angle bisectors of a triangle is the center of the inscribed circle

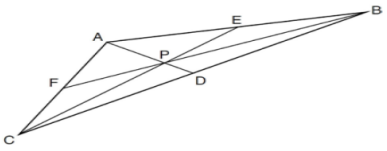
B. The intersection of the angle bisectors of a triangle is the center of the circumscribed circle.

C. The intersection of the perpendicular bisectors of the sides of a triangle is the center of the inscribed circle.

D. The intersection of the perpendicular bisectors of the sides of a triangle is the center of the circumscribed circle.

3.

In the diagram below of ABC, AE ≅ BE, AF ≅ CF, and CD ≅ BD.



The point marked P is known as the

A Incenter
B Circumcenter
C Orthocenter
D. Centroid

4.

Match the **terms in List A** to their **definition in List B**. Write the correct letter to the matching numerals in the **Answer Booklet**.

List A		List B	
i	Centriod	a	The point where the three altitudes of a triangle meet.
ii	Incentre	b	The point where the perpendicular bisectors of all three sides of a triangle meet.
iii	Orthocentre	c	The point where the angle bisectors of all three angles of a triangle meet.
		d	The point where the three medians of a triangle intersect.
		e	A perpendicular line from the vertex of a triangle to the opposite side.