


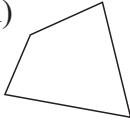
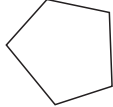
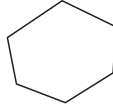
SAMPLE PAPER 7: PAPER 2

QUESTION 8 (75 MARKS)

Question 8 (a)

- (i) A triangle is a three-sided polygon. The sum of the three interior angles in a triangle in degrees is 180° .
- (ii) A triangle with three equal sides and angles is called an **equilateral** triangle. Each angle in degrees in this triangle is equal to 60° .

Question 8 (b)

POLYGON	SUM OF THE INTERIOR ANGLES
Three-sided polygon (Triangle) 	180°
Four-sided polygon (Quadrilateral) 	360°
Five-sided polygon 	540°
Six-sided polygon 	720°

A four-sided polygon can be divided into two triangles, giving a sum of $2 \times 180^\circ = 360^\circ$ for its interior angles.

A five-sided polygon can be divided into three triangles, giving a sum of $3 \times 180^\circ = 540^\circ$ for its interior angles.

Question 8 (c)

	NAME	SIZE OF EACH INTERIOR ANGLE
Three-sided regular polygon	equilateral triangle	60°
Four-sided regular polygon	square	90°
Five-sided regular polygon	pentagon	108°
Six-sided regular polygon	hexagon	120°

Question 8 (d)

Sum of the interior angles = $(n - 2) \times 180^\circ$

Measure of each interior angle = $\frac{(n - 2) \times 180^\circ}{n}$

Question 8 (e)

(i) $|\angle AOB| = \frac{360^\circ}{5} = 72^\circ$

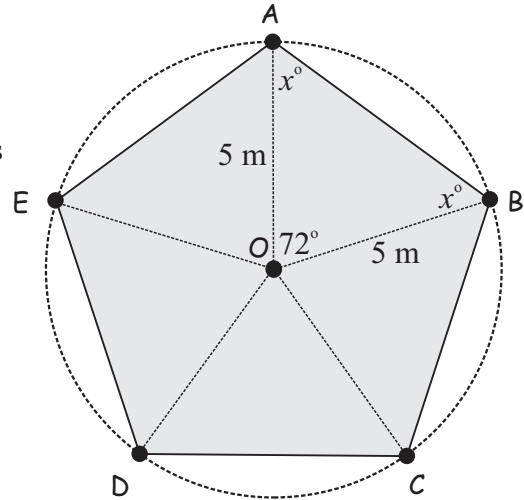
- (ii) Triangle AOB is an isosceles triangle as two sides (the radii) have the same length. Therefore, the base angles are equal in measure.

$$72^\circ + x^\circ + x^\circ = 180^\circ$$

$$2x^\circ = 180^\circ - 72^\circ = 108^\circ$$

$$\therefore x = 54^\circ$$

$$|\angle OAB| = |\angle OBA| = 54^\circ$$



(iii) $\frac{|AB|}{\sin 72^\circ} = \frac{5}{\sin 54^\circ}$ $\frac{a}{\sin A} = \frac{b}{\sin B}$

$$\therefore |AB| = \frac{5 \sin 72^\circ}{\sin 54^\circ} = 5.9 \text{ m}$$

$$\text{Perimeter} = 5 \times 5.9 = 29.4 \text{ m}$$

(iv) Area of $\triangle AOB = \frac{1}{2}(5)(5) \sin 72^\circ = 11.88 \text{ m}^2$

$\text{Area} = \frac{1}{2} ab \sin C$

$$\text{Area of flower bed} = 5 \times 11.88 = 59.4 \text{ m}^2$$

(v) Number of kilograms of fertiliser = $59.4 \times 0.75 = 44.55 \text{ kg}$

$$\text{Number of bags} = \frac{44.55}{1.5} = 29.7 \approx 30$$

$$\text{Cost of fertiliser} = 30 \times \text{€}3.45 = \text{€}103.50$$
