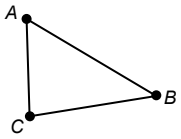
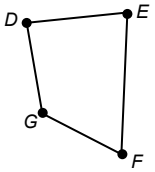
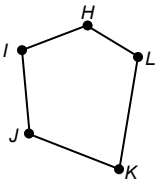
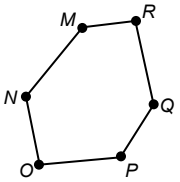
Jawapan

Bab 9

1. (a)

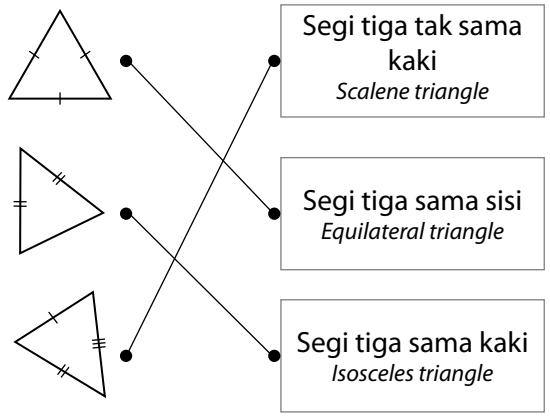
	Poligon *Polygon*	**Bilangan sisi** *Number of sides*	**Bilangan bucu** *Number of vertices*	**Bilangan pepenjuru** *Number of diagonals*
(i)		5	5	$\frac{5(5-3)}{2} = 9$
(ii)		6	6	$\frac{6(6-3)}{2} = 9$
(iii)		7	7	$\frac{7(7-3)}{2} = 14$
(iv)		8	8	$\frac{8(8-3)}{2} = 20$

2.

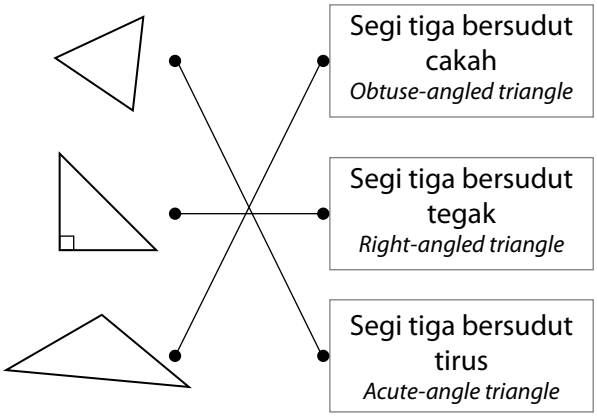
Bilangan sisi *Number of sides*	3	4	5	6
Bentuk poligon *Shape of polygon*				
Nama poligon *Name of polygon*	Segi tiga *ABC* *Triangle ABC*	Sisi empat *DEFG* *Quadrilateral DEFG*	Pentagon *HIJKL* *Pentagon HIJKL*	Heksagon *MNOPQR* *Hexagon MNOPQR*

(Terima sebarang label yang munasabah / *Accept any reasonable label.*)

3. (a)



(b)



4. (a) $x + x + 128° = 180°$
$2x + 128° = 180°$
$2x = 52°$
$x = 26°$

(b) $x + 45° + 90° = 180°$
$x + 135° = 180°$
$x = 180° - 135°$
$= 45°$

(c) $x + x = 162°$
$2x = 162°$
$x = 81°$

(d) $x + 90° = 154°$
$x = 154° - 90°$
$= 64°$

5. (a) $\angle CAB = \dfrac{180° - 54°}{2}$
$= 63°$

$\angle DAB = \dfrac{180° - 32°}{2}$
$= 74°$

$x = 74° - 63°$
$= 11°$

(b) $\angle JMK = 135° - 48°$
$= 87°$

$\angle KML = 180° - 87°$
$= 93°$

$x = \dfrac{180° - 93°}{2}$
$= 43.5°$

$y = 180° - 43.5°$
$= 136.5°$

(c) $y = 2x + 30°$ .....①

$3x = y - 34° + 31°$
$3x = y - 3°$ .....②

Gantikan ① ke dalam ②:
Substitute ① into ②:

$3x = (2x + 30°) - 3°$
$3x = 2x + 30° - 3°$
$x = 27°$

Gantikan $x = 27°$ ke dalam ①:
Substitute $x = 27°$ into ①:

$y = 2(27°) + 30°$
$= 84°$

(d) $y = 180° - 90° - 50°$
$= 40°$

$\angle KNL = \dfrac{y}{2}$
$= \dfrac{40°}{2}$
$= 20°$

$2x + 20° + 90° = 180°$
$2x = 180° - 90° - 20°$
$2x = 70°$
$x = 35°$

$y : x = 40° : 35°$
$\dfrac{y}{x} = \dfrac{40°}{35°}$
$y = \dfrac{8}{7}x$

6. (a) (i) sama panjang
equal length
(ii) selari
parallel
(iii) membahagi dua sama
bisectors

(b) (i) sama panjang
equal length
(ii) selari
parallel
(iii) membahagi dua sama serenjang
perpendicular bisectors

(c) (i) sama / *equal*
(ii) selari / *parallel*
(iii) sama / *equal*
(iv) membahagi dua sama / *bisect*

(d) (i) bersebelahan / *adjacent*
(ii) sama saiz / *equal in size*

7. (a) $p = 180° - 130°$
$= 50°$

$q = 360° - p - 160° - 69°$
$= 131° - 50°$
$= 81°$

(b) $p = 180° - 130° - 27°$
$= 23°$

$q = 27° + 23°$
$= 50°$ ← Sudut sepadan / *Corresponding angles*

8. (a) $\angle EGF = 360° - 83° - 90° - 115°$
$= 72°$

$\angle HGE = 360° - 72° - 38° - 130°$
$= 120°$

$\angle EAH = 360° - 90° - 90° - 120°$
$= 60°$

$x = 60° \div 3$ ← Sudut bertentangan / *Opposite angles*
$= 20°$

$\angle ABC = \angle ADC$
$\angle ADC = 360° - 90° - 130° - 20°$
$= 120°$

$y = 120° - 83°$
$= 37°$

(b) *QRUV* ialah sebuah lelayang.
QRUV is a kite.

$$x = \frac{360° - 112° - 46°}{2}$$
$$= 101°$$

$$\angle QTS = 180° - 62°$$
$$= 118°$$

QTUV ialah sebuah lelayang.
QTUV is a kite.

$$\angle TQV = \frac{360° - 62° - 46°}{2}$$
$$= 126°$$

$$\angle TQR = 126° - 101°$$
$$= 25°$$

$$\angle PQT = 180° - 25°$$
$$= 155°$$

$$\angle SPQ = 180° - 148°$$
$$= 32°$$

$$y = 360° - 32° - 155° - 118°$$
$$= 55°$$

(c) $2x + 2y + 75° + 65° = 360°$
$2x + 2y = 220°$
$x + y = 110°$
$y = 110° - x$ .....①

$2x + 2x + y + 70° = 360°$
$4x + y = 290°$ ..... ②

Gantikan ① ke dalam ②: / *Substitute ① into ②:*
$4x + (110° - x) = 290°$
$4x + 110° - x = 290°$
$3x = 180°$
$x = 60°$

Gantikan $x = 60°$ ke dalam ①:
Substitute $x = 60°$ into ①:
$y = 110° - 60°$
$= 50°$

9. (a) $\angle LKG = 180° - 2 \times 73°$
$= 34°$
$x = 34°$ ← Sudut selang-seli / *Alternate angles*

$2y = 360° - 101° - 153° - 34°$
$= 72°$
$y = 36°$

(b) $\angle ECD = \angle BCA = 47°$

$\angle GEF + \angle GFE = 121°$
$\angle GEF = 121° - \angle GFE$
$\angle GEF = 121° - 42°$
$= 79°$

$\angle DEC = \angle GEF$
$= 79°$

$y = 47° + 79°$
$= 126°$

(c) $p = 180° - 135°$
$= 45°$

$q + 2 \times 63° = 180°$
$q = 180° - 2 \times 63°$
$= 54°$

$\angle FDE = 180° - 108°$
$= 72°$

$r = 180° - 2 \times 72°$
$= 36°$

$p + q + r = 45° + 54° + 36°$
$= 135°$

(d) $\angle PMQ = \angle PRN = y$
$\angle PNR = x$

Daripada lelayang *PQSN*:
From the kite PQSN:
$2x + y + 120° = 360°$
$2x + y = 240°$ .....①

Daripada segi tiga *PQM:*
From the triangle PQM:
$x + 2y = 180°$ .....②

② × 2 : $2x + 4y = 360°$ .....③
③ − ① : $3y = 120°$
$y = 40°$

Gantikan $y = 40°$ ke dalam ①:
Substitute $y = 40°$ into ①:
$2x + 40° = 240°$
$2x = 200°$
$x = 100°$

10. Aktiviti PAK-21

Praktis Masteri 9

BAHAGIAN A

1. Poligon ialah bentuk yang tertutup, mempunyai 3 atau lebih bilangan sisi garis lurus. Poligon tidak mempunyai sisi melengkung.
A polygon is a closed shape, having 3 or more straight sides. Polygons do not have curved sides.

Jawapan / *Answer*: **B**

2. Jawapan / *Answer*: **D**

3.
$$3x = 54°$$
$$x = \frac{54°}{3}$$
$$= 18°$$

Jawapan / *Answer*: **A**

4.
$$\angle XYZ = \angle ZWX$$
$$\angle XYZ + \angle ZWX + 70° + 100° = 360°$$
$$2\angle XYZ + 70° + 100° = 360°$$
$$2\angle XYZ = 360° - 100° - 70°$$
$$2\angle XYZ = \frac{190°}{2}$$
$$\angle XYZ = 95°$$

Jawapan / *Answer*: **B**

5.
$$\angle PTU = 50° + 20°$$
$$= 70°$$
$$y = 180° - 60° - 70°$$
$$= 50°$$

Jawapan / *Answer*: **A**

6.
$$\angle IHE = \frac{180°}{3}$$
$$= 60°$$
$$\angle GHF = \frac{180° - 40°}{2}$$
$$= 70°$$
$$\angle EHF = 180° - 60° - 70°$$
$$= 50°$$

Jawapan / *Answer*: **C**

BAHAGIAN B

7. (a) Lelayang / *Kite*
(b) 4
(c) 2
(d) 1

8. (a) ✗
(b) ✓
(c) ✓
(d) ✗

9.
$$60° + \boxed{130°} + 2x + 3x = \boxed{360°}$$
$$5x = \boxed{170°}$$
$$x = \boxed{34°}$$

BAHAGIAN C

10. (a) Segi tiga dan pentagon
Triangle and pentagon

(b)
$$p = 43° + 88°$$
$$= 131°$$
$$\angle NKL = 180° - 131°$$
$$= 49°$$
$$49° + 49° + 43° + q = 180°$$
$$141° + q = 180°$$
$$q = 180° - 141°$$
$$= 39°$$

(c)
$$x = 90° + 64°$$
$$= 154°$$
$$\angle QNM = 180° - 64°$$
$$= 116°$$
$$\angle QNL = 116° \div 2$$
$$= 58°$$
$$y = 180° - 58°$$
$$= 122°$$

11. (a)
- Pasangan sisi yang bertentangan adalah selari.
The opposite sides are parallel.
- Sudut bertentangan adalah sama.
The opposite angles are equal.
- Pepenjuru membahagi dua sama antara satu sama lain.
The diagonals are bisectors of each other.

(b) $\angle TPS = \angle PTS = 57°$
$$x = 180° - 2(57°)$$
$$= 66°$$
$$y = \angle SPQ$$
$$= 180° - 57°$$
$$= 123°$$
$$x + y = 66° + 123°$$
$$= 189°$$

(c) $\angle JKS = \angle PKL$, $\angle TLM = \angle KLQ$, $\angle RQU = \angle LQP$, $\angle VPN = \angle QPK$

$\angle PKL + \angle KLQ + \angle LQP + \angle QPK = 360°$

Hasil tambah sudut pedalaman sisi empat
The sum of interior angles of a quadrilateral

Oleh itu, / *Thus*,
$\angle JKS + \angle TLM + \angle RQU + \angle VPN = 360°$
Hasil tambah sudut pedalaman segi tiga
Sum of all interior angles of triangle
$= 180°$

Jumlah sudut pedalaman bagi segi tiga *JKS*, *TLM*, *RQU* dan *PVN*
Total interior angles of triangles JKS, TLM, RQU and PVN
$= 4 \times 180°$
$= 720°$
Maka / *Hence,*
$a + b + c + d + e + f + g + h = 720° - 360°$
$= 360°$

Fokus KBAT

(a) (i) Hasil tambah sudut pedalaman bagi sebuah segi tiga
The sum of interior angles of a triangle
$= 180°$

Maka / *Hence*,
$x + 2x + 3x = 180°$
$6x = 180°$
$x = \frac{180°}{6}$
$= 30°$

(ii) Sudut-sudut pedalaman segi tiga tersebut ialah 30°, 60° dan 90°. Maka, segi tiga tersebut merupakan sebuah segi tiga bersudut tegak.
The interior angles of the triangle are 30°, 60° *and* 90°. *Hence, the triangle is a right-angled triangle.*

(b) Poligon yang mempunyai 8 sisi ialah oktagon.
Polygon that has 8 *sides is octagon.*

Bilangan pepenjuru
Number of diagonals
$= \frac{8(8 - 3)}{2}$
$= \frac{40}{2}$
$= 20$

ALTERNATIF

KAEDAH

Bilangan sisi
Number of vertices
= 8

8 – 3 = 5

Maka, bilangan pepenjuru
Hence, the number of diagonals
= 2(5) + 4 + 3 + 2 + 1
= 20