Bab 1 — Pola dan Jujukan
Patterns and Sequences

Soalan Objektif

1. D **2.** B **3.** B **4.** D **5.** C

Soalan Subjektif

1. (a)

16, 15, 13, 10, 6, …	Jujukan *A sequence*
	Bukan jujukan *Not a sequence*
4, –14, 24, –34, 421, …	Jujukan *A sequence*
	Bukan jujukan *Not a sequence*

(b)
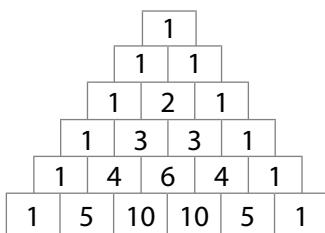
2. (a)
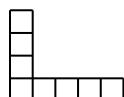
Menambah dua petak kepada corak sebelumnya, iaitu satu petak pada setiap hujung corak itu.
Add two boxes to the previous design, which is one box at each end of the design.

(b)

Mengurangkan dua segi tiga daripada corak sebelumnya.
Reduce two triangles from the previous design.

3. (a) (i) $45 - 6n$, $n = 0, 1, 2, 3, …$
 (ii) -30
 (b) (i) Baris ke-5 / *5th row*
 (ii) 21
 (c) Jujukan nombor ganjil:
 Odd number sequence:
 $31, 37, 43, 49, …$

 Tambah 6 kepada nombor sebelumnya.
 Add 6 to the previous number.

Jujukan nombor genap:
Even number sequence:
$34, 40, 46, 52, …$

Tambah 6 kepada nombor sebelumnya.
Add 6 to the previous number.

Bab 2 — Pemfaktoran dan Pecahan Algebra
*Factorisation and Algebraic Fractions*

Soalan Objektif

1. A **2.** C **3.** B **4.** C **5.** D

Soalan Subjektif

1. (a)

| $(2s + t)(s + 1)$ | $2s^2 + 2s + t + st$ |
| $(5 - t)(2s - t)$ | $t^2 + 10s - 5t - 2st$ |

(b)
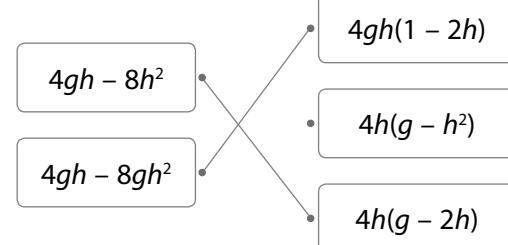
2. (a) $\dfrac{5mn}{m + 5} \div \dfrac{10n^2}{m^2 - 25}$

$= \dfrac{5mn}{m + 5} \times \boxed{\dfrac{m^2 - 25}{10n^2}}$

$= \dfrac{5mn}{m + 5} \times \dfrac{\boxed{(m + 5)(m - 5)}}{10n^2}$

$= \boxed{\dfrac{m^2 - 5m}{2n}}$

(b) $6p - 12 = \boxed{6}(p - 2)$

3. (a) $(x - 3y)(3 - p)$
 (b) $(2a^2 + 10a + 12)$ cm²
 (c) (i) $(2x + 2)$ m
 (ii) $(5x^2 - 12x - 17)$ m²

Bab 3 — Rumus Algebra
Algebraic Formulae

Soalan Objektif

1. B **2.** C **3.** D **4.** A **5.** C

Soalan Subjektif

1. (a)

Situasi *Situation*	Perkara rumus *Subject of formula*
Isi padu, I ialah hasil darab panjang, p, tinggi, t dan lebar, l. *The volume, I is the product of length, p, height, t, and width, l.*	I
Susan membayar RMy untuk m kg sayur yang berharga RM3 setiap kilogram. *Susan pays RMy for m kg of vegetables that cost RM3 per kilogram.*	y

(b)

Rumus *Formula*	Perkara rumus *Subject of the formula*	Bukan perkara rumus *Not subject of the formula*
$4y = 5x - 3$		✓
$y = x^3 - 2x + 4$	✓	

2.
$$z = \sqrt{10x - y}$$
$$10x - y = \boxed{z^2}$$
$$10x = \boxed{z^2} + \boxed{y}$$
$$x = \boxed{\frac{z^2 + y}{10}}$$

3. (a) $m = \dfrac{3l}{k^3 + n^2}$

(b) (i) $x = \dfrac{180° - y}{3}$

(ii) Segi tiga bersudut cakah
Obtuse-angled triangle

(c) (i) $H = 12p + 8q$
(ii) $J = 9.6p + 6.4q$

Bab 4 — Poligon / *Polygons*

Soalan Objektif

1. B **2.** D **3.** A **4.** D **5.** C

Soalan Subjektif

1. (a)
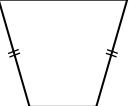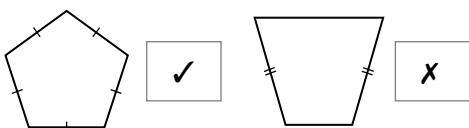
(b)

Poligon *Polygon*	Bilangan paksi simetri *Number of axes of symmetry*
Pentagon sekata *Regular pentagon*	5
Heptagon sekata *Regular heptagon*	7

2.

Bilangan sisi poligon *Number of sides of polygon*	Sudut pedalaman *Interior angle*
3	60°
5	108°
8	135°
10	144°

3. (a) 72
(b) (i) 36
(ii) 10
(c) (i) B
(ii) 10

Bab 5 — Bulatan / *Circles*

Soalan Objektif

1. D **2.** B **3.** A **4.** B **5.** C

Soalan Subjektif

1. (a)

Penerangan *Explanation*	Bahagian bulatan *Part of circle*
Garis lurus yang menyambungkan dua titik pada lilitan dan melalui pusat bulatan. *The straight line that joins two points on the circumference and passing through the centre of the circle.*	Diameter *Diameter*
Rantau yang dibatasi oleh satu lengkok dan dua jejari. *The region which is enclosed by an arc and two radii.*	Sektor *Sector*

(b) $OG = OH$
$DEF = ABC$

2. Panjang lengkok PQ
Length of arc PQ

$$= \frac{60°}{\boxed{360°}} \times \boxed{2} \times \frac{22}{7} \times \boxed{42}$$

$$= \boxed{44} \text{ cm}$$

3. (a) 14.28 cm^2
(b) 18.33 cm^2
(c) 56

Bab 6 — Bentuk Geometri Tiga Dimensi / *Three-Dimensional Geometrical Shapes*

Soalan Objektif

1. B **2.** C **3.** A **4.** A **5.** C

Soalan Subjektif

1.

Luas 2 bulatan + Luas 1 segi empat tepat *Area of 2 circles + Area of one rectangle*	
Luas 2 segi tiga + Luas 3 segi empat tepat *Area of 2 triangles + Area of 3 rectangles*	
Luas 1 segi empat + Luas 4 segi tiga *Area of one square + Area of 4 triangles*	
Luas 1 bulatan + Luas 1 permukaan melengkung *Area of 1 circle + Area of 1 curved surface*	

2. (a)

✓   ✗
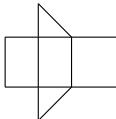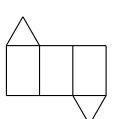
(b) $2 \times$ luas bulatan *area of circle* $+ 1 \times$ luas segi empat tepat *are of rectangle*

3. (a) 429 cm²
(b) 550 cm²
(c) (i) 12 cm
(ii) 400 cm³

Bab 7	**Koordinat** *Coordinates*

Soalan Objektif

1. C **2.** D **3.** A **4.** C **5.** A

Soalan Subjektif

1.

Pasangan titik *Pair of points*	**Jarak (Unit)** *Distance (Units)*
	3
A dan / *and B*	4
	5
A dan / *and C*	6
	7
C dan / *and D*	8
	9
B dan / *and E*	10

2. $P = \left(\dfrac{\boxed{2} + 6}{2}, \dfrac{5 + \boxed{-3}}{2} \right)$

$= (\boxed{4}, \boxed{1})$

3. (a) (i) *T*(4, 4)
(ii) 6.32 unit / *units*
(b) 21.63 unit / *units*
(c) (i) (−1, 5)
(ii) 5 unit / *units*

Bab 8	**Graf Fungsi** *Graphs of Functions*

Soalan Objektif

1. A **2.** D **3.** A **4.** B **5.** D

Soalan Subjektif

1.

	Hubungan satu kepada satu *One-to-one relation*
	Hubungan satu kepada banyak *One-to-many relation*
	Hubungan banyak kepada satu *Many-to-one relation*
	Hubungan banyak kepada banyak *Many-to-many relation*

**2.**
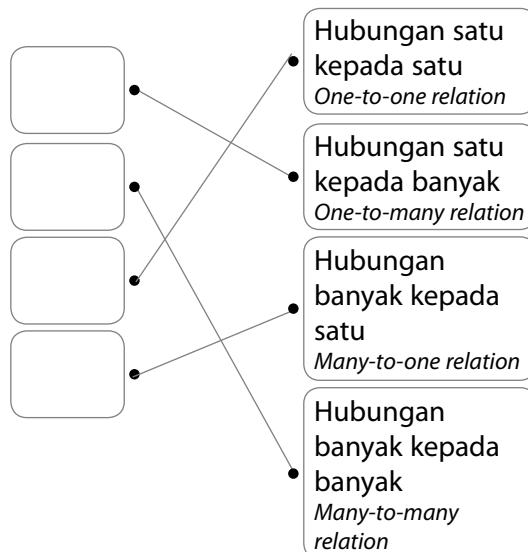
x	−5	−1	3	3.7
y	−1.8	−9	3	1.8

3. (a) (i) Hubungan banyak kepada satu
Many-to-one relation
(ii) Fungsi kerana setiap objek hanya mepunyai satu imej.
Function because each object only has one image

(b) (i)

x	0	1	2	3
L	0	5	12	21

(ii)

$L = x^2 + 4x$
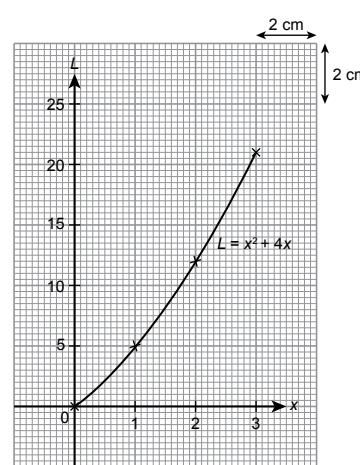
(c) (i) 6 m
(ii) 0.3 s, 3 s

Bab 9 — Laju dan Pecutan
Speed and Acceleration

Soalan Objektif

1. C **2.** A **3.** C **4.** D **5.** A

Soalan Subjektif
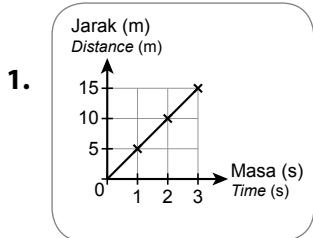
1.
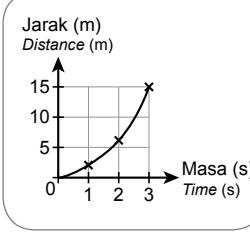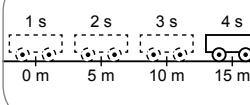
2. (a) (i) 1.6
   (ii) 54
   (b) (i) nyahpecutan
      deceleration
   (ii) pecutan
      acceleration

3. (a) 1.5 km/j per saat
      1.5 km/h per second
   (b) 6:40 p.m.
   (c) (i) 76 km/j (km/h)
      (ii) 30 minit / *minutes*

Bab 10 — Kecerunan Garis Lurus
Gradient of a Straight Line

Soalan Objektif

1. A **2.** D **3.** C **4.** A **5.** B

Soalan Subjektif

1. (a) (i) ✓
      (ii) ✗
   (b) (i) 18
      (ii) 2

2.
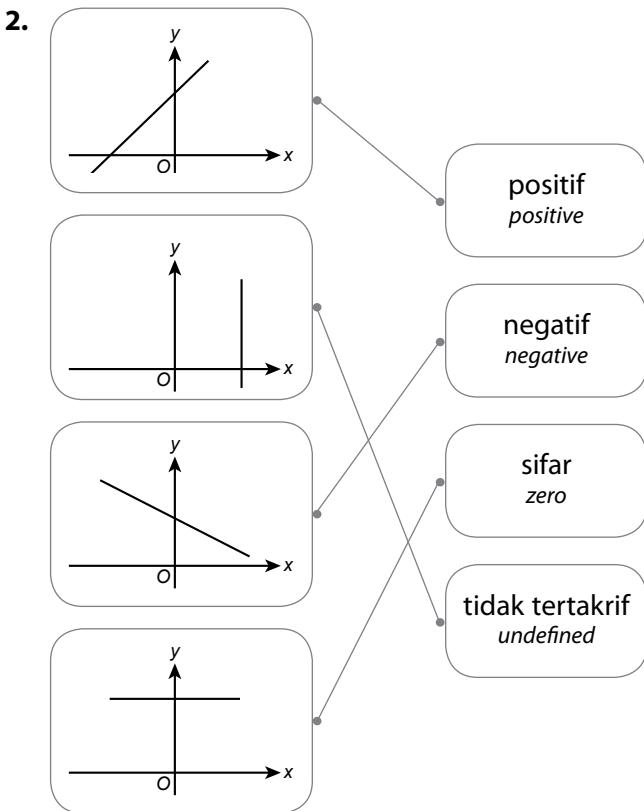
3. (a) 2.5
   (b) (i) 5
      (ii) (25, 0)
   (c) (i) $Q(-12, 6)$
      (ii) $-\dfrac{1}{4}$

Bab 11 — Transformasi Isometri
Isometric Transformations

Soalan Objektif

1. D **2.** D **3.** C **4.** B **5.** A

Soalan Subjektif

1. (a)

Objek dan imej dikatakan kongruen apabila bentuk dan saiz adalah sama. *Object and image are said to be congruent when their shapes and sizes are the same.*	**(Benar** *True)*	**Palsu** *False*
Imej di bawah semua transformasi isometri mempunyai orientasi yang sama dengan objeknya. *The images under all isometric transformations have the same orientation as their objects.*	**Benar** *True*	**(Palsu** *False)*

(b)
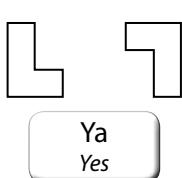
Ya
Yes
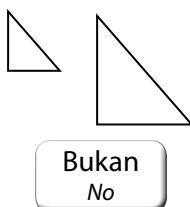
Bukan
No

2. (i) ✓
   (ii) ✗
   (iii) ✗
   (iv) ✓

3. (a) (i) *P*: Putaran / *Rotation*
         Q: Translasi / *Translation*
      (ii) Saiz imej dan objek adalah sama.
         Size of image and object are the same.
         Panjang sisi objek adalah sama dengan panjang sisi imej yang sepadan.
         The side length of the object is the same with the corresponding side length of image.
   (b) (0, 8)
   (c) (i) *R*
      (ii) Putaran 90° lawan arah jam pada titik *O*
         Rotation of 90° anticlockwise at point O

Bab 12	**Sukatan Kecenderungan Memusat**
	Measures of Central Tendencies

Soalan Objektif

1. C **2.** B **3.** C **4.** D **5.** C

Soalan Subjektif

1. (a) Min / *Mean*: 6
         Median / *Median*: 6.5
   (b) (i) Kilang *D* / *Factory D*
      (ii) Australia

2.

Jisim (kg) *Mass* (kg)	Kekerapan *Frequency*	Kelas mod *Modal class*
50 – 59	5	
60 – 69	7	✓
70 – 79	3	

3. (a) 53.03
   (b) (i) Bagi gerai *A*, sukatan kecenderungan memusat yang sesuai ialah median kerana terdapat nilai ekstrem, iaitu 45 dalam data tersebut. Median = 80
      Bagi gerai *B*, sukatan kecenderungan memusat yang sesuai ialah min kerana taburan markah adalah sekata. Min = 79
      For stall A, the appropriate measure of central tendency is median because there is an extreme value, which is 45 in the data. Median = 80
      For stall B, the appropriate measure of central tendency is mean because the distribution of the marks is uniform. Mean = 79
      (ii) Julat gerai *A* / *Range of stall A* = 42
         Julat gerai *B* / *Range of stall B* = 12
         Gerai *B* kerana secara keseluruhan, markah bagi gerai *B* adalah lebih tinggi (min *B* > min *A*) dan lebih konsisten (julat *B* < julat *A*) berbanding gerai *A*.
         Stall B because as overall, the mark for stall B is higher (mean B > mean A) and more consistent (range B < range A) than stall A.

(c) Sukatan kecenderungan memusat yang sesuai ialah min kerana min mengambil kira markah keseluruhan bagi keempat-empat kriteria dan boleh digunakan untuk menentukan pemenang. Mod dan median tidak memberi maklumat bererti tentang pemenang pertandingan itu.
The appropriate measure of central tendency is mean because mean takes the marks for all criteria and can be used to determine the winner. Mode and median cannot give any significant meaning about the winner of the competition.


Bab 13	**Kebarangkalian Mudah**
	Simple Probability

Soalan Objektif

1. B **2.** B **3.** B **4.** A **5.** C

Soalan Subjektif

1.

Lambungkan duit syiling *Tossing a coin* — Putarkan pemutar *Spin a spinner* — Kesudahan *Outcomes*

Gambar *Tail*: Gambar, A (Tail, A); Gambar, B (Tail, B); Gambar, C (Tail, C)
Angka *Head*: Angka, A (Head, A); Angka, B (Head, B); Angka, C (Head, C)
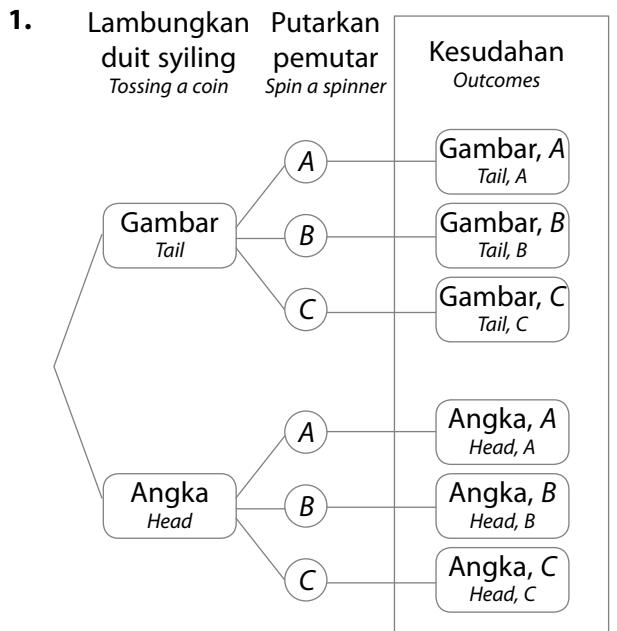
2. (a) Mungkin / *Possible*
   (b) Tidak mungkin / *Impossible*
   (c) Tidak mungkin / *Impossible*
   (d) Mungkin / *Possible*

3. (a) (i) *S* = {(*T*, *B*), (*T*, *U*), (*T*, *N*), (*T*, *G*), (*T*, *A*)}
      (ii) *K* = {(*T*, *B*), (*T*, *N*), (*T*, *G*)}
   (b) Bekas *P* kerana kebarangkalian mendapatkan gula-gula berperisa oren adalah lebih tinggi, iaitu 0.02.
      Container P because the probability of getting orange-flavoured candy is higher, that is 0.02.
   (c) (i) (a) 0.2
         (b) 0.24
         (c) 0.56
      (ii) Motosikal kerana kebarangkalian kematian yang disebabkan oleh kemalangan yang melibatkan motosikal adalah tertinggi.
         Motorcycle because the probability of death caused by accidents involving motorcycle is the highest