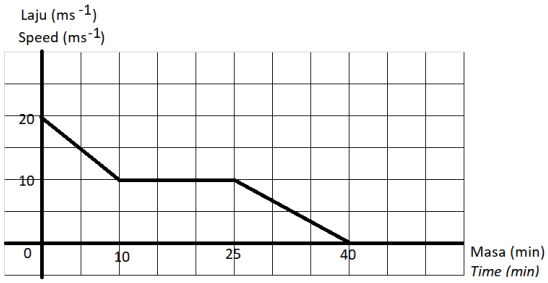
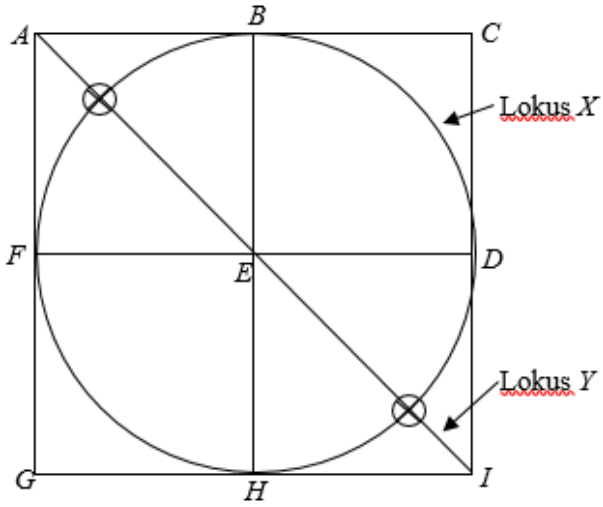
SKEMA JAWAPAN MATEMATIK KERTAS 2
PEPERIKSAAN PERCUBAAN SPM TAHUN 2022
TINGKATAN 5
SMK SULTAN ABDUL AZIZ

BAHAGIAN A

NO. SOALAN		JAWAPAN	MARKAH
1.	(a)	$\begin{pmatrix} -18 \\ -3 \end{pmatrix}$	1m
	(b)	$\begin{pmatrix} 1.50 & 1.20 \end{pmatrix}\begin{pmatrix} 5 \\ 3 \end{pmatrix}$ $1.50(5) + 1.20(3)$ RM 11.10	1m 1m 1m
2.	(i)	Bukan graf mudah Terdapat gelung iaitu (R,R) atau Terdapat berbilang tepi iaitu (Q,S) , (Q,S)	1m 1m
	(ii)	2×7 14	1m 1m
3.		Polisi utama: $\frac{500000}{1000} \times 2.79$ = RM1395 Polisi penyakit kritikal: $\frac{\left(\frac{50}{100} \times 500000\right)}{500} \times 3.52$ = RM1760 Premium bulanan:	1m 1m 1m

		$\frac{1395+1760}{12}$ RM262.92	1m
4.		 Pecutan = $\frac{0-10}{15}$ = - 0.67	2m 1m 1m
5.		 Lokus X Lokus Y Persilangan 2 lokus	 1m 1m 1m
6	(*a*)	2	1m
	(*b*)	$\frac{20}{100}\times 350000$	1m

		$60000\left(1+\frac{0.05}{2}\right)^{(2)(2)}$ 70 000 – 66 228.77 3 771.23	1m 1m 1m
		$(1 \times 5^2) + 3$ *atau* $(5 \times 8) + 2$ $28 \div 4$ *atau* $42 \div 6$ $7 \times 7 \times 7$ *atau* 343 527_8	1m 1m 1m 1m
	(a)	Jika $2x + 3 \neq 11$ maka $x \neq 4$ *If* $2x + 3 \neq 11$ *then* $x \neq 4$	1m
	(b)(i)	$2^n + 1, n =, 1, 2, 3, 4, \ldots$	2m
	(ii)	10	1m
9.	(i)	$\frac{20-0}{18-0}$ atau setara 1.11 atau $\frac{10}{9}$ atau setara	1m 1m
	(ii)	$\frac{1}{2}\times 20\times 8+\frac{1}{2}\times(20+v)\times 10+18\times v+\frac{1}{2}\times v\times 14=1720$ 48	2m 1m
10.	(i)	$P = 2$ $K = 360$	1m 1m
	(ii)	- 2	1m
BAHAGIAN B			
11	(a)(i)	$h = -1$	1m

		$k = 2$	1m
	(ii)	$a\ (0 + 1)\ (0 - 2) = -8$ $a = 4$	 1m
	(iii)	$x = \frac{2+(-1)}{2}$ $x = \frac{1}{2}$	1m 1m
	(*b*)	$\frac{200}{n+10} = \frac{200}{n} - 1$ $200(n) = (200 - n)(n + 10)$ $n^2 + 10n - 2000 = 0$	1m 1m 1m

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i) Kelas Budiman/ *Budiman Class*

Markah/ Marks	Kekerapan/ Frequency (f)	Titik Tengah/ Midpoint (x)	fx	x^2	fx^2
55-59	4	57	228	3249	12996
60-64	6	62	372	3844	23064
65-69	5	67	335	4489	22445
70-74	4	72	288	5184	20736
75-79	4	77	308	5929	23716
80-84	2	82	164	6724	13448
	Σf=25		Σfx= 1695		Σfx^2= 116405

Min , $\frac{\Sigma fx}{\Sigma f} = \frac{1695}{25}$ 1m

=67.8 1m

Sisihan piawai: $\sqrt{\frac{\sum fx^2}{\sum f} - \overline{x^2}}$

$= \sqrt{\frac{116405}{25} - \left(\frac{1695}{25}\right)^2}$ 1m

=7.70 1m

Kelas Jujur/ *Jujur Class*

Markah/ Marks	Kekerapan/ Frequency (f)	Titik Tengah/ Midpoint (x)	fx	x^2	fx^2
55-59	3	57	171	3249	9747
60-64	7	62	434	3844	26908
65-69	8	67	536	4489	35912
70-74	3	72	216	5184	15552
75-79	3	77	231	5929	17787
80-84	1	82	82	6724	6724
	$\sum f$=25		$\sum fx$= 1670		$\sum fx^2$= 112630

1m

1m

1m

1m

Min , $\frac{\sum fx}{\sum f} = \frac{1670}{25}$

=66.8

1m1m

Sisihan piawai: $\sqrt{\frac{\sum fx^2}{\sum f} - \overline{x^2}}$

$= \sqrt{\frac{112630}{25} - \left(\frac{1670}{25}\right)^2}$

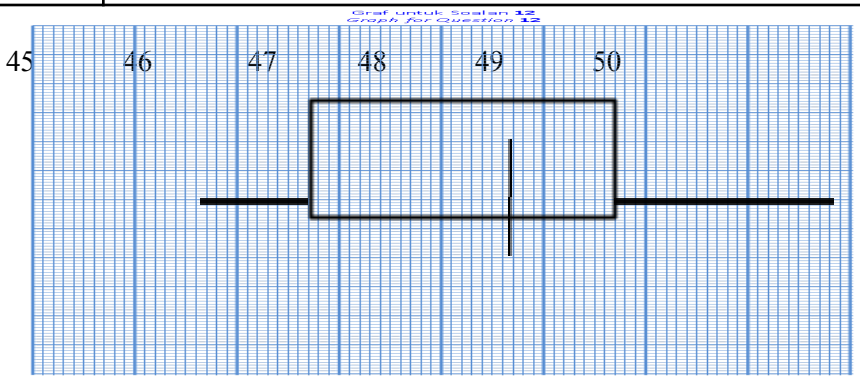
=6.55

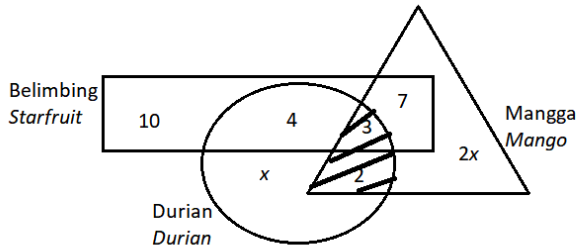
ii) Kelas Jujur lebih konsisten daripada kumpulan Kelas Budiman kerana sisihan piwainya lebih kecil (6.55< 7.70)

13	(a)	Tidak saling ekslusif Saling eksklusif $\{17\}$ $\frac{1}{8}$ $(A \cup B) = \{11,13,16,17,18\}$ $P(\mathrm{A} \cup \mathrm{B}) = \frac{5}{8}$ $P(\mathrm{A}) + P(\mathrm{B}) - P(\mathrm{A} \cap \mathrm{B})$ $\frac{3}{8} + \frac{3}{8} - \frac{1}{8}$ $\frac{5}{8}$ Terbukti	1m 1m 1m 1m 1m 1m 1m 1m
14.	(*a*)	**T** = 4500 - 200 = 4300 **U** = 1000 + 550 + 600 = 2150 **V** = 4300 – 2250 – 2150 = -100	1m 1m 1m
	(*b*)	Aliran Tunai = Pendapatan Lebihan = - 100 = Aliran Negatif sebanyak RM100 Tidak Cekap Justifikasi: Perbelanjaan melebihi baki pendapatan	1m 1m 1m
	(*c*)	Simpanan bulanan: $= \frac{30000}{3 \times 12} = 1\,000$ Cadangan penambahbaikkan: 1) Kurangkan perbelanjaan tidak tetap seperti kurangkan bil utiliti atau kurangkan simpanan melancong. 2) Tambah sumber pendapatan melalui kerja lebih masa atau pekerjaan sampingan.	1m 1m 1m
15	(a)(i)	Pembesaran, pada pusat A, faktor skala $\frac{1}{3}$	3m
	(ii)	Pantulan, pada garis *KJ*	2m

	(*b*)	$108 \times \left(\frac{1}{3}\right)^2$ 12 12 × 2 24	1m 1m 1m 1m
	(c)	Teselasi	1m

BAHAGIAN C

16.	(a)	Luas = $(x - 3)(5x - 2)$ $5x^2$ - 2x - 15 x + 6 $5x^2$ - 17 x + 6		1m 1m 1m
	(b)	(i)	22	1m
		(ii)	5	1m
	(c)	 Julat = 50.7 – 45.3 = 5.4 Julat antara kuartil = 48.8 – 46.2 = 2.6		3m 1m 1m
	(d) (i)	p = 33.40 q = 70.98		1m 1m
	(ii)	43.60 + 33.40 + 154.80 231.80		2m 1m

17.	(a)	$42x + 30y = 291$ atau $54x + 36y = 360$ $1512x + 1080y = 10476$ atau $1620x + 1080y = 10800$ atau setara $108x = 324$ atau setara x= RM 3	1m 1m 1m 1m
	(b)	(i) $2x + x = 35 - 10 - 4 - 3 - 7 - 2$ $x = 3$ $7 + 3 + 2 + 6$ 18 (ii) $4 + 2 + 7$ atau 13	1m 1m 1m 1m
			2m
	(c)	i. 20 +36+70+18+50+18 212 m ii. 20 x 18 + 70 x 18 1620 m^2	1m 1m 2m 1m