

**JABATAN PENDIDIKAN NEGERI SABAH**  
**KEMENTERIAN PENDIDIKAN MALAYSIA**

**PEPERIKSAAN PERCUBAAN SPM 2024**

**MATEMATIK**

**1449/1**

**Kertas 1**

1 jam 30 minit

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**JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU**

1. Kertas peperiksaan ini mengandungi **40** soalan.
2. Jawab **semua** soalan.
3. Bagi setiap soalan, pilih satu jawapan sahaja. **Hitamkan** jawapan anda pada kertas jawapan objektif yang disediakan.
4. Kertas peperiksaan ini adalah dalam dwibahasa.
5. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
6. **Kertas jawapan objektif** hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.

Kertas peperiksaan ini mengandungi **21** halaman bercetak.

**NOMBOR DAN OPERASI**  
**NUMBER AND OPERATIONS**

- |   |  |
|---|--|
| <p>1 <math>a^m \times a^n = a^{m+n}</math></p> <p>3 <math>(a^m)^n = a^{mn}</math></p> <p>5 <math>a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = (a^{\frac{1}{n}})^m</math></p> <p>7 Faedah mudah / <i>Simple interest</i>,<br/><math>I = Prt</math></p> <p>9 Jumlah bayaran balik / <i>Total repayment</i>, <math>A = P + Prt</math></p> <p>10 <math>\text{Premium} = \frac{\text{Nilai muka polisi}}{\text{RMx}} \times (\text{Kadar premium per RMx})</math><br/><br/><math>\text{Premium} = \frac{\text{Face value of policy}}{\text{RMx}} \times (\text{Premium rate per RMx})</math></p> <p>11 Jumlah insurans yang harus dibeli = <math>\left( \begin{array}{l} \text{Peratusan} \\ \text{ko - insurans} \end{array} \right) \times \left( \begin{array}{l} \text{Nilai boleh} \\ \text{insurans harta} \end{array} \right)</math><br/><br/><math>\text{Amount of required insurance} = \left( \begin{array}{l} \text{Percentage of} \\ \text{co - insurance} \end{array} \right) \times \left( \begin{array}{l} \text{Insurable value} \\ \text{of property} \end{array} \right)</math></p> | <p>2 <math>a^m \div a^n = a^{m-n}</math></p> <p>4 <math>a^{\frac{1}{n}} = \sqrt[n]{a}</math></p> <p>6 <math>a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m</math></p> <p>8 Nilai matang / <i>Maturity value</i>,<br/><math>MV = P\left(1 + \frac{r}{n}\right)^{nt}</math></p> |
|---|--|

**PERKAITAN DAN ALGEBRA**  
**RELATIONSHIP AND ALGEBRA**

- |   |  |
|---|--|
| <p>1 Jarak / <i>Distance</i><br/><br/><math>= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}</math></p> <p>3 Laju purata = <math>\frac{\text{Jumlah jarak}}{\text{Jumlah masa}}</math><br/><br/><math>\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}</math></p> <p>5 <math>A^{-1} = \frac{1}{ad-bc} \begin{pmatrix} d &amp; -b \\ -c &amp; a \end{pmatrix}</math></p> | <p>2 Titik tengah / <i>Midpoint</i><br/><br/><math>(x, y) = \left( \frac{x_1+x_2}{2}, \frac{y_1+y_2}{2} \right)</math></p> <p>4 <math>m = \frac{y_2-y_1}{x_2-x_1}</math></p> <p>6 <math>m = -\frac{\text{pintasan-y}}{\text{pintasan-x}}</math><br/><br/><math>m = -\frac{y-\text{intercept}}{x-\text{intercept}}</math></p> |
|---|--|

**SUKATAN DAN GEOMETRI**

**MEASUREMENT AND GEOMETRY**

- 1 Teorem Pythagoras / *Pythagoras Theorem*,  $c^2 = a^2 + b^2$
- 2 Hasil tambah sudut pedalaman poligon / *Sum of interior angles of a polygon*  
 $= (n - 2) \times 180^\circ$
- 3 Lilitan bulatan =  $\pi d = 2\pi j$   
*Circumference of circle* =  $\pi d = 2\pi r$
- 4 Luas bulatan =  $\pi j^2$   
*Area of circle* =  $\pi r^2$
- 5  $\frac{\text{panjang lengkok}}{2\pi j} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Arc length}}{2\pi r} = \frac{\theta}{360^\circ}$
- 6  $\frac{\text{Luas sektor}}{\pi j^2} = \frac{\theta}{360^\circ}$   
 $\frac{\text{Area of sektor}}{\pi r^2} = \frac{\theta}{360^\circ}$
- 7 Luas layang =  $\frac{1}{2} \times$  hasil darab panjang dua pepenjuru  
*Area of kite* =  $\frac{1}{2} \times$  *product of two diagonals*
- 8 Luas trapezium =  $\frac{1}{2} \times$  hasil tambah dua sisi selari  $\times$  tinggi  
*Area of trapezium* =  $\frac{1}{2} \times$  *sum of two parallel sides*  $\times$  *height*
- 9 Luas permukaan silinder =  $2\pi j^2 + 2\pi jt$   
*Surface area of cylinder* =  $2\pi r^2 + 2\pi rh$
- 10 Luas permukaan kon =  $\pi j^2 + \pi js$   
*Surface area of cone* =  $\pi r^2 + \pi rs$
- 11 Luas permukaan sfera =  $4\pi j^2$   
*Surface area of sphere* =  $4\pi r^2$
- 12 Isi padu prisma = luas keratan rentas  $\times$  tinggi  
*Volume of prism* = *cross sectional area*  $\times$  *height*
- 13 Isi padu silinder =  $\pi j^2 t$   
*Volume of cylinder* =  $\pi r^2 h$
- 14 Isi padu kon =  $\frac{1}{3} \pi j^2 t$   
*Volume of cone* =  $\frac{1}{3} \pi r^2 h$

- 15 Isi padu sfera =  $\frac{4}{3}\pi r^3$   
*Volume of sphere* =  $\frac{4}{3}\pi r^3$
- 16 Isi padu piramid =  $\frac{1}{3} \times$  luas tapak  $\times$  tinggi  
*Volume of pyramid* =  $\frac{1}{3} \times$  base area  $\times$  height
- 17 Faktor skala,  $k = \frac{PA'}{PA}$   
*Scale factor, k* =  $\frac{PA'}{PA}$
- 18 Luas imej =  $k^2 \times$  luas objek  
*Area of image* =  $k^2 \times$  area of object

**STATISTIK DAN KEBARANGKALIAN**  
**STATISTICS AND PROBABILITY**

- 1 Min / Mean,  $\bar{x} = \frac{\Sigma x}{N}$
- 2 Min / Mean,  $\bar{x} = \frac{\Sigma fx}{\Sigma f}$
- 3 Varians / Variance,  $\sigma^2 = \frac{\Sigma x^2}{N} - \bar{x}^2 = \frac{\Sigma (x - \bar{x})^2}{N}$
- 4 Varians / Variance,  $\sigma^2 = \frac{\Sigma fx^2}{\Sigma f} - \bar{x}^2 = \frac{\Sigma f(x - \bar{x})^2}{\Sigma f}$
- 5 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\Sigma x^2}{N} - \bar{x}^2} = \sqrt{\frac{\Sigma (x - \bar{x})^2}{N}}$
- 6 Sisihan piawai / Standard deviation,  $\sigma = \sqrt{\frac{\Sigma fx^2}{\Sigma f} - \bar{x}^2} = \sqrt{\frac{\Sigma f(x - \bar{x})^2}{\Sigma f}}$
- 7  $P(A) = \frac{n(A)}{n(S)}$
- 8  $P(A') = 1 - P(A)$

*Jawab semua soalan.*

- 1 Bundarkan 53 094 betul kepada empat angka bererti.

*Round off 53 094 correct to four significant figures.*

- A 53 000
- B 53 090
- C 53 094
- D 53 100

- 2 Puan Maria membungkus 25 kg manisan sempena perkahwinan anak perempuannya. Semua manisan tersebut dimasukkan ke dalam 200 bekas kecil dan diagihkan kepada tetamu. Hitung purata jisim, dalam g, manisan dalam setiap bekas.

*Puan Maria packed 25 kg of candy during her daughter's wedding. All of the candy were put into 200 small containers and distributed to the guests. Calculate the average mass, in g, of candy in each container.*

- A  $8 \times 10^{-3}$
- B  $1.25 \times 10^{-2}$
- C  $1.25 \times 10^2$
- D  $8 \times 10^3$

- 3 Permudahkan  $(5m^{-2}n^3)^2 \div 5m^{-5}n$ .

*Simplify  $(5m^{-2}n^3)^2 \div 5m^{-5}n$ .*

- A  $mn^5$
- B  $m^3n^4$
- C  $5mn^5$
- D  $5m^{-9}n^7$

- 4

1, 4, 5, 9, 14, s

Cari nilai bagi s.

*Find the value of s.*

- A 6
- B 17
- C 23
- D 28

- 5 Ungkapkan  $2(8^4) + 8$  sebagai nombor dalam asas lapan.

*Express  $2(8^4) + 8$  as a number in base eight.*

- A  $1010_8$
- B  $2010_8$
- C  $10010_8$
- D  $20010_8$

- 6 Jika  $1122_3 + m_8 = 116_7$ , cari nilai  $m$ .

*If  $1122_3 + m_8 = 116_7$ , find the value of  $m$ .*

- A 18
- B 20
- C 22
- D 24

- 7 Encik Charles menerima pendapatan aktif sebanyak RM 7850 dan pendapatan pasif sebanyak RM 2500 dalam sebulan. Dia mempunyai perbelanjaan tetap sebanyak RM 3850 dan perbelanjaan tidak tetap sebanyak RM 1080 setiap bulan. Hitung aliran tunai bulanan Encik Charles.

*Mr. Charles received an active income of RM 7850 and a passive income of RM 2500 in a month. He has the fixed expenses of RM 3850 and the variable expenses of RM 1080 every month. Calculate Mr Charles's monthly cash flow.*

- A 420
- B 5420
- C 7580
- D 5240

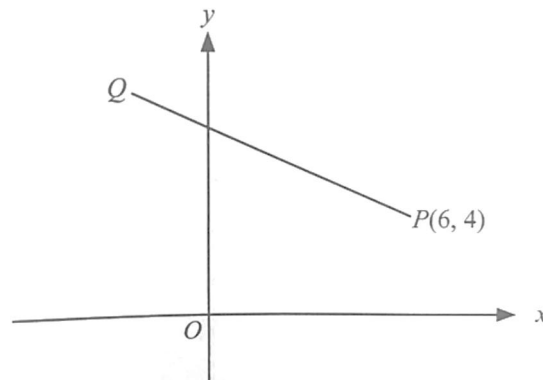
- 8 Amir merancang untuk membeli sebuah komputer riba baharu yang berharga RM5999, tetapi dia tidak mempunyai wang tunai yang mencukupi. Dia memohon pinjaman peribadi dengan tempoh bayaran balik 3 tahun pada kadar faedah 5% setahun. Berapakah bayaran ansuran bulanan?

*Amir plans to buy a new laptop which costs RM5999, but he does not have enough cash. He applies for a personal loan with a repayment period of 3 years at an interest of 5% per annum, What is his monthly instalment?*

- A 191.63
- B 196.65
- C 221.46
- D 229.41

- 9 Antara berikut, yang manakah perlindungan oleh insurans kemalangan diri?  
*Which of the following is covered by personal accident insurance?*
- A Kerugian atau kerosakan kenderaan berenjin.  
*Any loss or damage related to motor vehicle.*
  - B Perbelanjaan perubatan seperti kos kemasukan ke hospital dan pembedahan.  
*Medical expenses such as hospitalization and surgery costs.*
  - C Kerugian dalam perjalanan seperti kematian dan kecatatan kekal, kehilangan bagasi, passport dan lain – lain.  
*Losses during travel such as death and permanent disability, loss of luggage, passport and others.*
  - D Kecederaan anggota badan, kecacatan, hilang upaya ataupun meninggal dunia secara langsung daripada kemalangan.  
*Bodily injury, disability or death resulting directly from accident*
- 10  $(2x - 3y)(y - 5x) =$
- A  $-3y^2 - 15xy - 10x^2$
  - B  $-3y^2 + 15xy - 10x^2$
  - C  $-3y^2 - 17xy - 10x^2$
  - D  $-3y^2 + 17xy - 10x^2$
- 11  $m$  ialah satu nombor. Apabila  $m$  didarab dengan 3 dan kemudian ditambah dengan 8, hasilnya ialah 45.  
Antara berikut, yang manakah merupakan persamaan linear bagi pernyataan yang diberikan?  
*m is a number. When m is multiplied by 3 and then added by 8, the result is 45.  
Which of the following is the linear equation for the given statement?*
- A  $3m + 8 = 45$
  - B  $3m - 8 = 45$
  - C  $3(m + 8) = 45$
  - D  $m(3 + 8) = 45$
- 12 Diberi bahawa persamaan suatu garis lurus ialah  $y = mx + c$  dengan pintasan-x bagi garis lurus itu ialah 9. Tentukan nilai yang betul bagi  $m$  dan  $c$  bagi garis lurus itu.  
*It is given that the equation of a straight line is  $y = mx + c$  and the x-intercept of the straight line is 9. Define the correct values of m and c of the straight line.*
- A  $m = \frac{2}{3}, c = 6$
  - B  $m = 3, c = 6$
  - C  $m = \frac{4}{9}, c = -4$
  - D  $m = \frac{4}{9}, c = 4$

- 13 Rajah 1 menunjukkan garis lurus  $PQ$  yang memintas paksi-y pada titik  $(0,6)$ .  $O$  ialah asalan.  
*Diagram 1 shows a straight line  $PQ$  intersecting the y-axis at point  $(0,6)$ .  $O$  is origin.*



Rajah 1 / Diagram 1

Antara berikut, yang manakah persamaan bagi garis lurus  $PQ$ ?  
*Which of the followings is the equation of the straight line  $PQ$ ?*

- A  $3y = -x + 6$   
 B  $3y = -x + 18$   
 C  $3y - x = 6$   
 D  $3y - x = 18$
- 14 Jadual 1 menunjukkan beberapa nilai dua pemboleh ubah,  $P$  dan  $Q$ .  
*The Table 1 shows some values of two variables,  $P$  and  $Q$ .*

$P$	2	4
$Q$	6	3

Jadual 1 / Table 1

Tentukan ubahan dalam bentuk persamaan yang melibatkan  $P$  dan  $Q$ .  
*Determine the variation in the form of equation that involves  $P$  and  $Q$ .*

- A  $Q = \frac{12}{P}$   
 B  $Q = \frac{24}{P}$   
 C  $Q = \frac{8}{P}$   
 D  $Q = \frac{6}{P}$

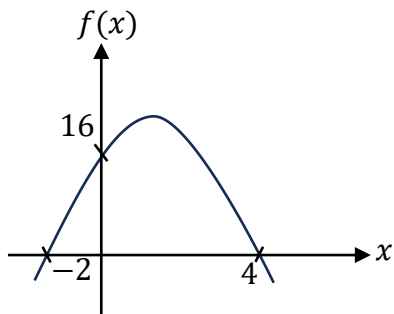


15 Graf manakah yang mewakili fungsi berikut:

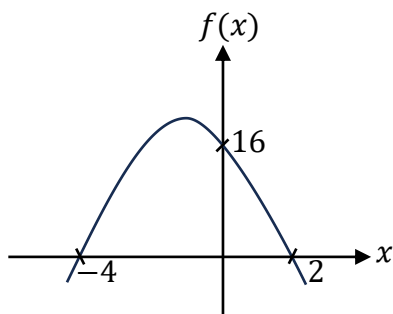
*Which graph represents the following function:*

$$f(x) = 2(x - 2)(x + 4)$$

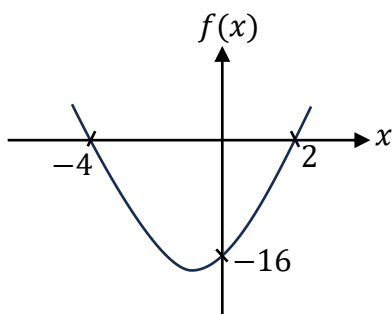
A



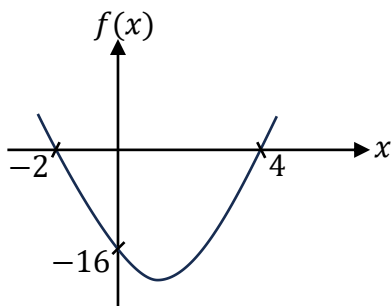
B



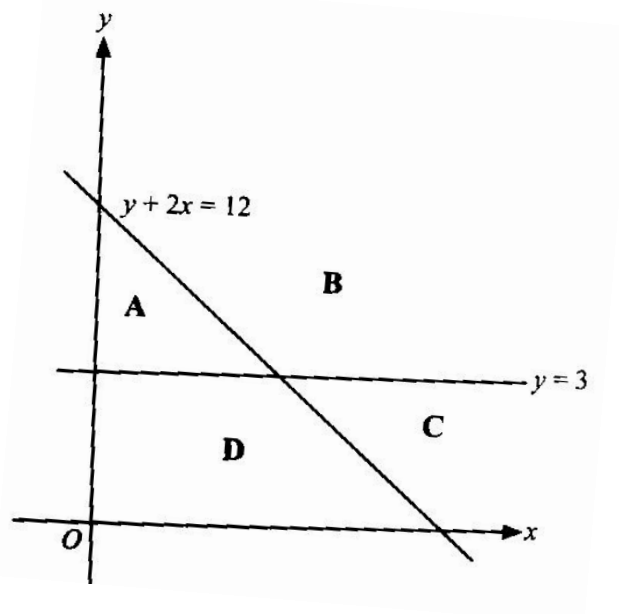
C



D



- 16 Rajah 2 menunjukkan dua garis yang dilukis pada satah Cartes.  
Diagram 2 shows two lines are drawn on a Cartesian plane.

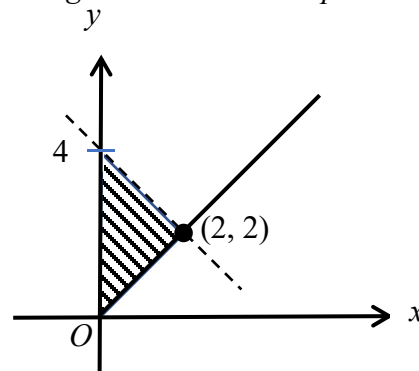


Rajah 2 / Diagram 2

Antara kawasan A, B, C dan D, yang manakah memuaskan ketaksamaan  $y \leq 3$  dan  $y + 2x \geq 12$ ?

Which of the regions A, B, C and D satisfies the inequalities  $y + 2x \geq 12$ ?

- 17 Rajah 3 menunjukkan kawasan berlorek pada satah Cartes.  
Diagram 3 shows a shaded region in a Cartesian plane.



Rajah 3 / Diagram 3

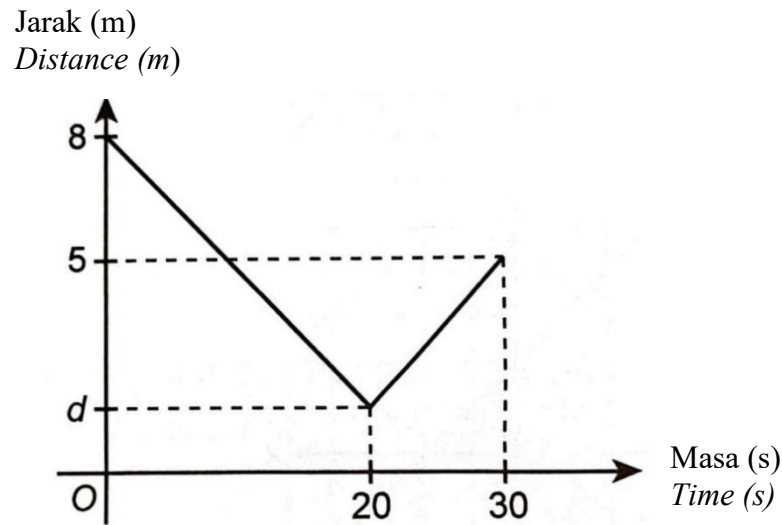
Nyatakan ketaksamaan linear yang mentakrifkan rantau berlorek dalam rajah.

State the linear inequalities that defines the shaded region in the diagram.

- A  $x < 0, y < x, y - x \leq 4$
- B  $x \leq 0, y \leq x, y + x < 4$
- C  $x > 0, y > x, y - x \leq 4$
- D  $x \geq 0, y \geq x, y + x < 4$

18 Rajah 4 menunjukkan graf jarak-masa bagi sebuah kereta mainan dalam tempoh 30 saat.

*Diagram 4 shows a distance-time graph of a toy car in a period of 30 seconds.*



Rajah 4 / Diagram 4

Diberi bahawa laju purata keseluruhan perjalanan kereta mainan itu ialah  $\frac{1}{3} \text{ ms}^{-1}$ , hitung nilai  $d$ .

*Given the average speed for the whole journey of the toy car is  $\frac{1}{3} \text{ ms}^{-1}$ , calculate the value of  $d$ .*

- A 0.5
- B 1.0
- C 1.5
- D 2.0

19 Diberi bahawa  $x$  berubah secara langsung dengan  $2y$  dan berubah secara songsang dengan  $z^2$ , dan  $x = 40$  apabila  $y = 180$  dan  $z = 6$ . Hitung nilai  $z$  apabila  $x = 8$  dan  $y = 144$ , diberi  $z > 0$ .

*It is given that  $x$  varies directly as  $2y$  and varies inversely as  $z^2$ , and  $x = 40$  when  $y = 180$  and  $z = 6$ . Calculate the value of  $z$  when  $x = 8$  and  $y = 144$ , given  $z > 0$ .*

- A 12
- B 24
- C 144
- D 576

- 20 Masa,  $t$  yang diambil untuk melukis pada sebuah tembok berubah secara langsung dengan luas tembok,  $A$  secara songsang dengan bilangan pelukis,  $N$ . Diberi 5 orang pelukis memerlukan 4.5 jam untuk melukis pada sebuah tembok yang luasnya 20 000 m<sup>2</sup>. Hitung bilangan pelukis,  $N$ , yang diperlukan untuk melukis pada sebuah tembok yang luasnya 30 000 m<sup>2</sup> dalam masa 2 jam 15 minit.

*The time taken,  $t$  to draw on a wall varies directly as the area of the wall,  $A$ , and inversely with as number of painters,  $N$ . Given that 5 painters take 4.5 hours to draw on a wall of area 20 000 m<sup>2</sup>. Calculate the number of painters,  $N$ , needed to draw on a wall of area 30 000 m<sup>2</sup> in 2 hours 15 minutes.*

- A 13
- B 14
- C 15
- D 16

- 21 Diberi matriks  $A = \begin{pmatrix} -2 & 5 & 3 \\ 3 & -10 & -6 \\ 5 & 9 & 4 \end{pmatrix}$ . Hitung nilai  $a_{22} - a_{13} + 2(a_{31})$ .

*Given that matrix  $A = \begin{pmatrix} -2 & 5 & 3 \\ 3 & -10 & -6 \\ 5 & 9 & 4 \end{pmatrix}$ . Calculate the value of  $a_{22} - a_{13} + 2(a_{31})$ .*

- A 2
- B -7
- C -3
- D 6

- 22 Diberi  $\begin{pmatrix} 2 & 8 \\ b & 0 \end{pmatrix} - 3 \begin{pmatrix} 1 & 3 \\ -2 & 0 \end{pmatrix} = \begin{pmatrix} -1 & c \\ -2 & 0 \end{pmatrix}$ , cari nilai  $b$  dan  $c$ .

*Given  $\begin{pmatrix} 2 & 8 \\ b & 0 \end{pmatrix} - 3 \begin{pmatrix} 1 & 3 \\ -2 & 0 \end{pmatrix} = \begin{pmatrix} -1 & c \\ -2 & 0 \end{pmatrix}$ , find the values of  $b$  and  $c$ .*

- A  $b = -8, c = -1$
- B  $b = -8, c = 5$
- C  $b = -4, c = 5$
- D  $b = -2, c = -1$

- 23 Permudahkan  $-3m - 7(m - 8)$

*Simplify  $-3m - 7(m - 8)$*

- A  $-3m + 8$
- B  $-5m + 16$
- C  $10m + 56$
- D  $-10m + 56$

- 24 Diberi  $\frac{4x+y}{3} = 3y - 4$ , ungkapkan  $y$  dalam sebutan  $x$ .

*Given  $\frac{4x+y}{3} = 3y - 4$ , express  $y$  in terms of  $x$ .*

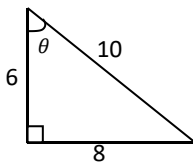
A  $y = \frac{x-3}{2}$

B  $y = \frac{x+3}{2}$

C  $y = \frac{x-3}{4}$

D  $y = \frac{x+3}{4}$

- 25



Cari nilai  $\sin \theta$  bagi segi tiga di atas.

*Find the value of  $\sin \theta$  for the triangle above.*

A  $\frac{6}{8}$

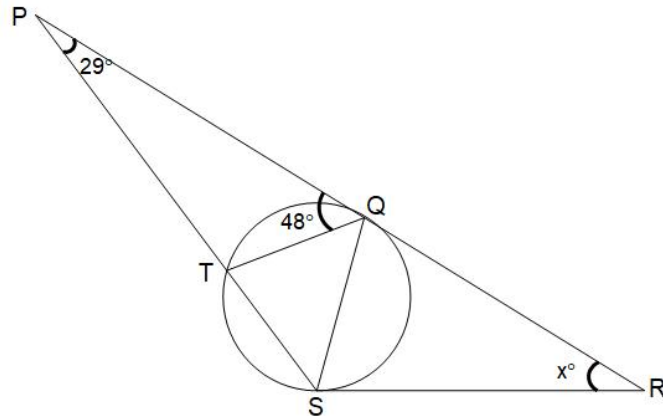
B  $\frac{6}{10}$

C  $\frac{8}{10}$

D  $\frac{8}{6}$

- 26 Dalam Rajah 5, PQR dan SR ialah tangen kepada bulatan QST masing-masing di titik Q dan S. PTS ialah garis lurus dan sudut  $\angle PQT$  ialah  $48^\circ$ .

*In Diagram 5, PQR and SR are tangent to the circle QST at the points Q and S respectively. PTS is a straight line and angle  $\angle PQT$  is  $48^\circ$ .*

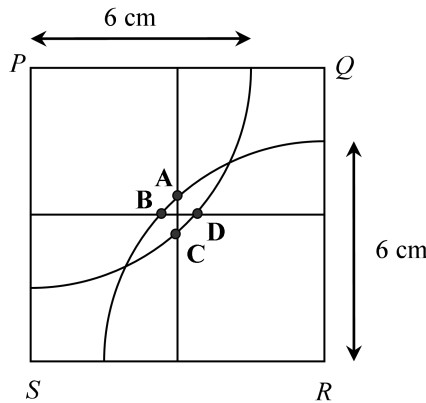


Rajah 5 / Diagram 5

Cari nilai  $x$ .

*Find the value of  $x$ .*

- A 10
  - B 26
  - C 29
  - D 45
- 27 Rajah 6 menunjukkan sebuah segi empat sama PQRS dan dua buah sukuan bulatan, masing-masing berpusat di P dan R.  
*The diagram 6 below shows a square PQRS and two quadrants of circle, with centres P and R respectively.*



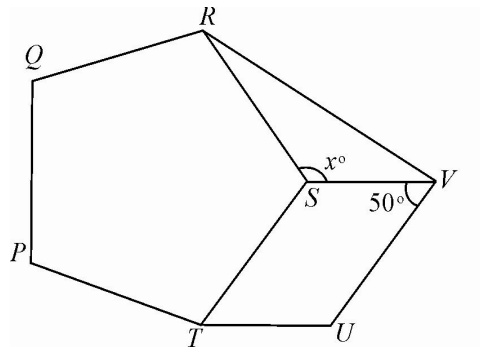
Rajah 6 / Diagram 6

Lokus  $X$  ialah satu titik yang sentiasa bergerak 6 cm dari titik  $R$ . Lokus  $Y$  ialah satu titik yang sentiasa bergerak di mana jaraknya sentiasa sama dari garis  $PQ$  dan garis  $SR$ .  
 Antara titik  $A$ ,  $B$ ,  $C$  dan  $D$ , yang manakah titik persilangan antara lokus  $X$  dan lokus  $Y$ ?

*Locus  $X$  is a point that always moves 6 cm from point  $R$ . Locus  $Y$  is a point that always moves such that it is equidistance from line  $PQ$  and  $SR$ .*

*Which point  $A$ ,  $B$ ,  $C$  and  $D$ , is the intersection of locus  $X$  and locus  $Y$ ?*

- 28 Dalam Rajah 7,  $TUVS$  ialah sebuah segiempat selari dan  $PQRST$  adalah pentagon sekata.  
*In Diagram 7,  $TUVS$  is a parallelogram and  $PQRST$  is a regular pentagon.*

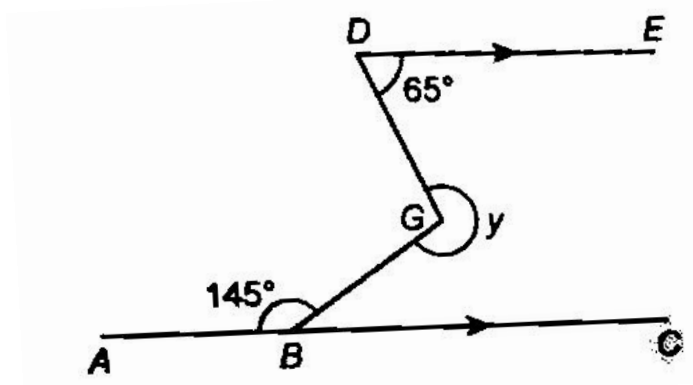


Rajah 7 / Diagram 7

Cari nilai  $x$ .

*Find the value of  $x$ .*

- A  $122^\circ$
  - B  $128^\circ$
  - C  $130^\circ$
  - D  $132^\circ$
- 29 Dalam Rajah 8,  $ABC$  ialah satu garis lurus.  
*In the Diagram 8,  $ABC$  is straight line.*



Rajah 8 / Diagram 8

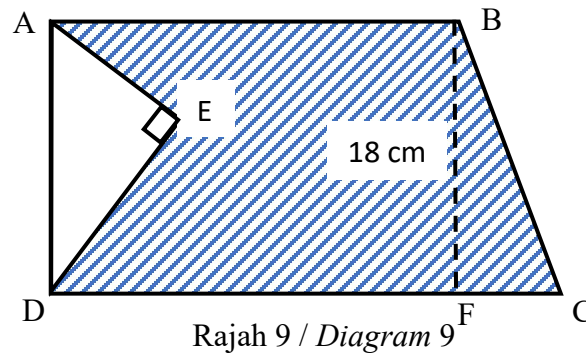
Cari nilai  $y$ .

*Find the value of  $y$ .*

- A  $100^\circ$
- B  $210^\circ$
- C  $260^\circ$
- D  $295^\circ$

- 30 Rajah 9 menunjukkan sebuah trapezium ABCD.

Diagram 9 shows a trapezium ABCD.

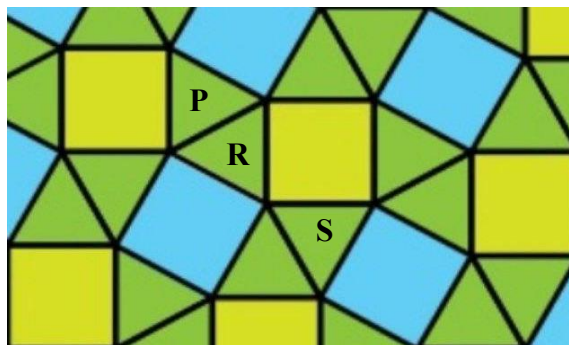


Diberi  $AE = \frac{2}{3} BF$ , cari panjang ED, dalam cm.

Given  $AE = \frac{2}{3} BF$ , find the length of ED, in cm.

- A 13.42  
 B 14.32  
 C 15.42  
 D 16.32
- 31 Rajah 10 menunjukkan gabungan tranformasi isometri yang menghasilkan suatu teselasi yang terdiri daripada segi tiga dan segi empat.

Diagram 10 shows the combined isometric transformations which produces a tessellation consisting of triangles and equilaterals.



Rajah 10 / Diagram 10

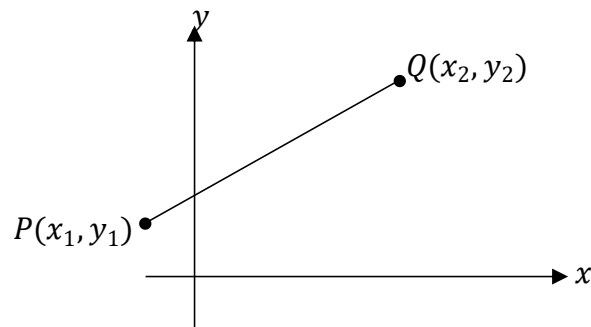
Apakah transformasi yang terlibat dalam menghasilkan bentuk R dan S daripada bentuk P?

What are the transformations involved to produce shapes R and S from shape P?

- A R – Pantulan / Reflections ; S – Putaran / Rotation  
 B R – Pantulan / Reflections ; S – Translasi / Translation  
 C R – Translasi / Translation ; S – Putaran / Rotation  
 D R - Putaran / Rotation ; S – Pantulan / Reflections



- 32 Rajah 11 di bawah menunjukkan satu garis lurus  $PQ$  yang dilukis pada satah Cartes.  
*Diagram 11 below shows a straight line  $PQ$  drawn on a Cartesian plane.*

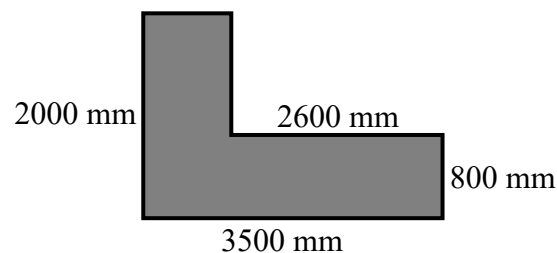


Rajah 11 / Diagram 11

Tentukan koordinat- $y$  bagi titik tengah  $PQ$ .

*Determine the  $y$ -coordinate of the midpoint of  $PQ$ .*

- A  $\frac{(x_1 + x_2)}{2}$   
 B  $\frac{(x_1 - x_2)}{2}$   
 C  $\frac{(y_1 + y_2)}{2}$   
 D  $\frac{(y_1 - y_2)}{2}$
- 33 Rajah 12 menunjukkan pelan rumah Annette.  
*Diagram 12 shows the plan of Annette's house*



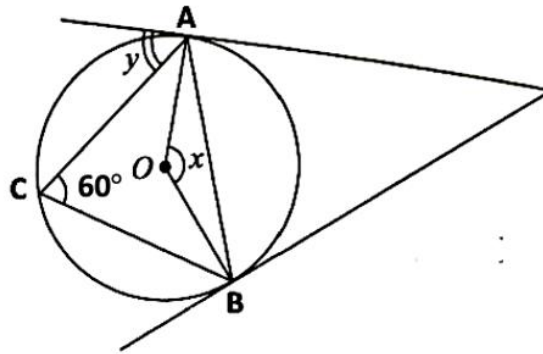
Rajah 12 / Diagram 12

Hitung luas sebenar, dalam  $m^2$ , rumahnya jika pelan berkenaan tersebut dilukis pada skala 1:25.

*Calculate the actual area, in  $m^2$ , of her house if the is drawn to a scale of 1:25.*

- A 3.88  
 B 97  
 C 257.2  
 D 2425

- 34 Rajah 13 menunjukkan dua tangen kepada sebuah bulatan dengan pusat  $O$  pada  $A$  dan  $B$ .  
*Diagram 13 shows two tangents to a circle with centre  $O$  at  $A$  and  $B$ .*



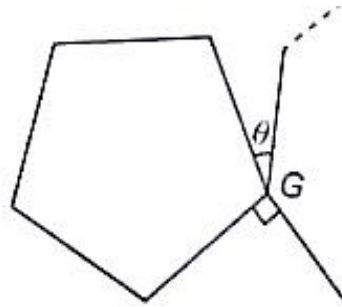
Rajah 13 / Diagram 13

Diberi  $CA = CB$ , cari nilai  $x$  dan nilai  $y$ .

*Given  $CA = CB$ , find the values of  $x$  and  $y$ .*

- A  $x = 120^\circ, y = 30^\circ$   
 B  $x = 130^\circ, y = 35^\circ$   
 C  $x = 140^\circ, y = 55^\circ$   
 D  $x = 120^\circ, y = 60^\circ$
- 35 Rajah 14 menunjukkan sebuah pentagon sekata dan sebuah poligon sekata  $P$  yang tidak lengkap bersentuhan pada titik  $G$ .

*Diagram 14 shows a regular pentagon and an incomplete regular polygon  $P$  touch at point  $G$ .*



Rajah 14 / Diagram 14

Diberi  $\theta$  adalah satu perempat daripada sudut pedalaman pentagon sekata, namakan poligon  $P$ .

*Given  $\theta$  is one fourth of the interior angle of the regular pentagon, name polygon  $P$ .*

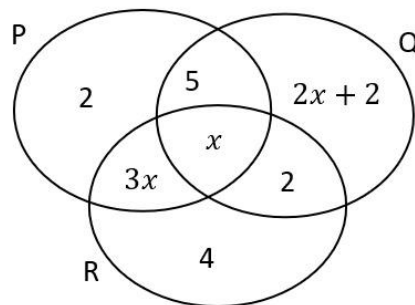
- A Heksagon sekata  
*Regular hexagon*  
 B Heptagon sekata  
*Regular heptagon*  
 C Oktagon sekata  
*Regular octagon*  
 D Nonagon sekata  
*Regular nonagon*

- 36 **V** ialah satu translasi  $\begin{pmatrix} 5 \\ 2 \end{pmatrix}$  dan **W** ialah satu putaran  $90^\circ$  lawan arah jam pada  $(2, 2)$ . Nyatakan koordinat imej bagi titik  $(5, 3)$  di bawah gabungan transformasi **VW**.

**V** is a translation  $\begin{pmatrix} 5 \\ 2 \end{pmatrix}$  and **W** is an anticlockwise rotation of  $90^\circ$  at  $(2, 2)$ . State the coordinates of the image of point  $(5, 3)$  under the combined transformations **VW**.

- A  $(7, 6)$
- B  $(6, 7)$
- C  $(10, 6)$
- D  $(-1, 7)$

- 37 Rajah 15 ialah gambar rajah Venn yang menunjukkan bilangan murid dalam tiga buah kuiz. Diagram 15 below is a Venn diagram shows the number of students in three quizzes.



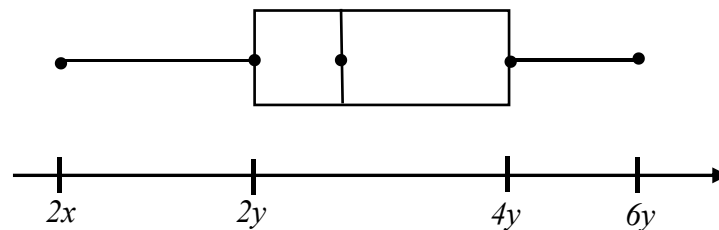
Rajah 15 / Diagram 15

Diberi bahawa set semesta,  $\xi = P \cup Q \cup R$ , Set  $P = \{\text{murid dalam kuiz Sains}\}$ , Set  $Q = \{\text{murid dalam kuiz Matematik}\}$  dan Set  $R = \{\text{murid dalam kuiz Sejarah}\}$ . Jumlah bilangan murid ialah 39 orang. Hitung jumlah murid yang mengambil kuiz Sains dan Sejarah sahaja.

It is given that the universal set  $\xi = P \cup Q \cup R$ , Set  $P = \{\text{students in Science quiz}\}$ , Set  $Q = \{\text{students in Mathematics quiz}\}$  and Set  $R = \{\text{students in History quiz}\}$ . The total number of students is 39. Calculate the total number of students take Science and History quiz only.

- A 4
- B 8
- C 12
- D 16

- 38 Antara peristiwa bergabung berikut, yang manakah peristiwa saling eksklusif?  
Which of the following combined event is a mutually exclusive events?
- A Memilih murid lelaki atau perempuan untuk dilantik sebagai ketua kelas.  
Chose a boy or a girl to be appointed as a class monitor
- B Mendapat nombor 6 dan gandaan 2 pada sekali lambungan dadu adil.  
Obtained number 6 and multiple of 2 on single fair dice roll.
- C Mendapat nombor genap dan nombor perdana dari kumpulan nombor  $x : 1 \leq x \leq 10$ .  
Obtain an even number and prime number from the number group  $x : 1 \leq x \leq 10$
- D Memilih huruf vokal dan huruf O dari set  $A = \{S, E, K, O, L, A, H\}$   
Chose a vocal and letter O from set  $A = \{S, E, K, O, L, A, H\}$
- 39 Plot kotak dalam rajah 16 mewakili satu set data.  
The box plot in diagram 16 below represents a set of data.



Rajah 16 / Diagram 16

Diberi julat dan julat antara kuartil masing-masing ialah 160 dan 70. Cari nilai minimum.  
Given the range and inter quartile range are 160 and 70. Find the minimum value.

- A 20
- B 25
- C 30
- D 35

- 40 Jadual 2 di bawah menunjukkan markah yang diperoleh oleh 15 orang murid dalam suatu kuiz.

*Table 2 below shows the marks that obtained by 15 students in a quiz.*

Markah <i>Mark</i>	Kekerapan <i>Frequency</i>	Titik Tengah <i>Midpoint</i>
1 - 5	2	3
6 - 10	7	8
11 - 15	b	13
16 - 20	a	18

Jadual 2 / *Table 2*

Diberi  $b = 2a$  dan min bagi markah murid ialah 10. Hitung nilai  $10a + 2b$ .

*Given  $b = 2a$  and the mean of the student's marks is 10. Calculate the value of  $10a + 2b$*

- A 18
- B 12
- C 28
- D 44

**KERTAS SOALAN TAMAT**  
***END OF QUESTIONS***