Professional Maths Centre

MATHS CATCH

PEPERIKSAAN PERTENGAHAN TAHUN
(Mid Term Exam)
2020

Matematik Tingkatan 5

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU
DO NOT OPEN THIS QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO

DWIBAHASA

Disediakan Oleh:
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semua soalan
Answer all questions

1 Bundarkan 3.076 betul kepada tiga angka bererti.
Round off 3.076 *correct to three significant figures.*

A 3.07 **C** 3.08
B 3.070 **D** 3.080

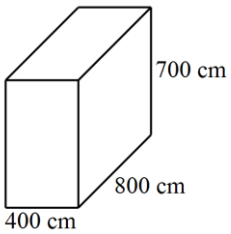
2 Nyatakan 0.00000641 dalam bentuk piawai.
Express 0.00000641 *in standard form.*

A 6.41×10^{-6} **C** 64.1×10^{-7}
B 6.41×10^{6} **D** 64.1×10^{7}

3 $\dfrac{0.029}{(1 \times 10^{-2})^4} =$

A 2.9×10^{-6} **C** 2.9×10^{6}
B 2.9×10^{-4} **D** 2.9×10^{4}

4 Rajah 1 ialah sebuah tangki kosong bersegi empat tepat dengan panjang 400 cm, lebar 800 cm, dan tinggi 700 cm.
Diagram 1 is a rectangular empty tank with length 400 cm, *width* 800 cm *and height* 700 cm.

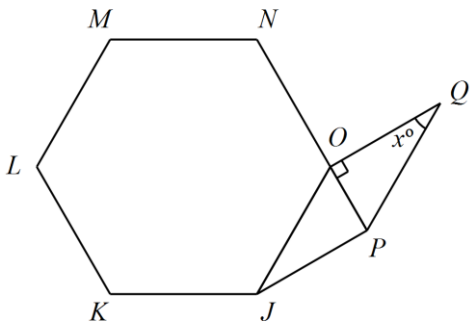


Rajah 1
Diagram 1

Jika 15% daripada tangki itu diisi dengan air, hitung isipadu air, dalam m^3, dalam tangki itu.
If 15% *of tank is filled up with water, calculate the volume, in* m^3*, of water in the tank.*

A 3.36×10^{2} **C** 1.904×10^{3}
B 3.36×10 **D** 1.904×10^{2}

5 Dalam Rajah 1, *JKLMNO* iala sebuah heksagon sekata dan *JOQP* ialah sebuah segi empat selari. *NOP* ialah garis lurus.
In Diagram 1, JKLMNO is a regular hexagon and JOQP is a parallelogram. NOP is a straight line.

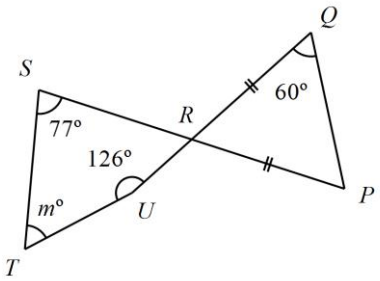


Rajah 1
Diagram 1

Cari nilai *x*.
Find the value of x.

A 15 **C** 60
B 30 **D** 120

6 Dalam Rajah 2, *PRS* dan *QRU* ialah garis lurus.
In Diagram 2, PRS and QRU are straight lines.

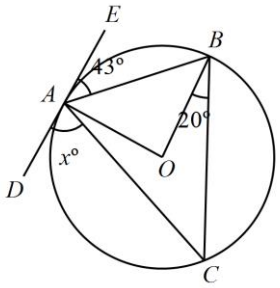


Rajah 2
Diagram 2

Nilai *m* ialah
The value of m is

A 97 **C** 117
B 107 **D** 127

7 Dalam Rajah 3, *DAE* ialah tangen kepada bulatan *ABC* dengan pusat *O* pada *A*.
In Diagram 3, DAE is a tangent to the circle ABC with centre O at A.

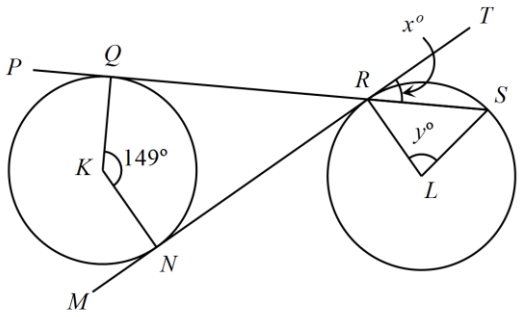


Rajah 3
Diagram 3

Cari nilai *x*.
Find the value of x.

A 62 **C** 77
B 67 **D** 86

8 Rajah 4 menunjukkan dua bulatan, masing-masing berpusat *K* dan *L*. *MNRT* ialah tangen sepunya kepada bulatan-bulatan, masing-masing di *N* dan di *R*. *PQRS* ialah tangen kepada bulatan berpusat *K* di *Q*.
Diagram 4 shows two circles with centre K and L respectively. MNRT is a common tangent to the circles at N and R respectively. PQRS is a tangent to the circle with centre K at Q.



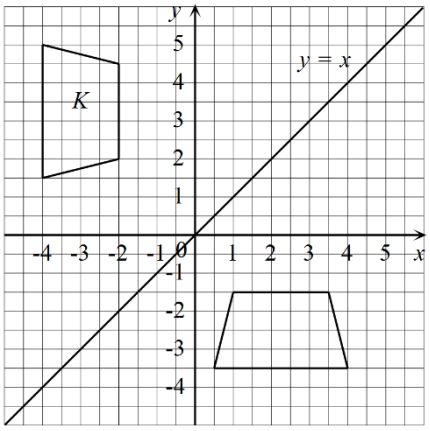
Rajah 4
Diagram 4

Cari nilai *x* + *y*.
Find the value of x + y.

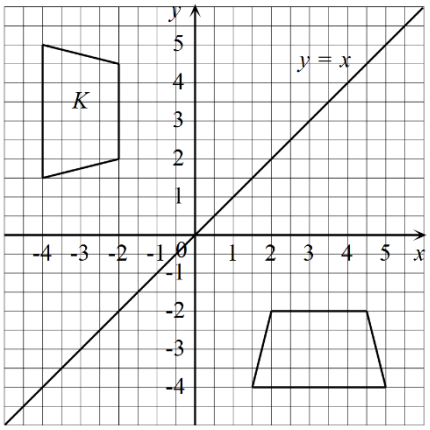
A 62 **C** 103
B 93 **D** 118

9 Antara yang berikut, manakah imej bagi sisi empat *K* di bawah satu pantulan pada garis lurus *y* = *x*?
Which of the following is the image of quadrilateral K under a reflection in the line y = x?

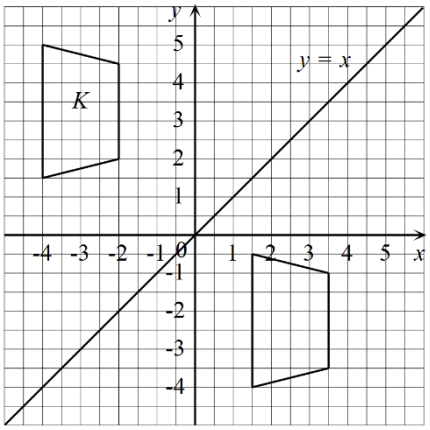
A



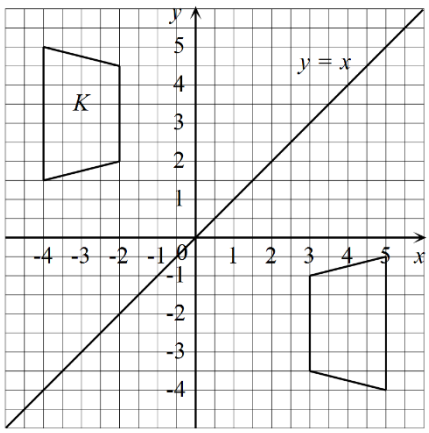
B



C

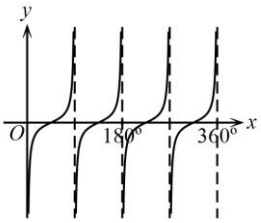


D

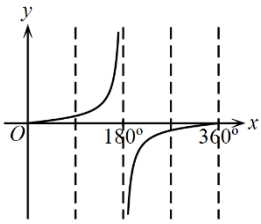


10 Antara yang berikut, yang manakah mewakili graf $y = \tan x°$ for $0° \le x \le 360°$?
Which of the following represents the graph of $y = \tan x°$ *for* $0° \le x \le 360°$*?*

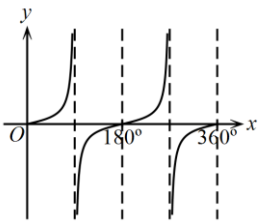
A



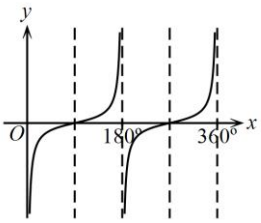
B



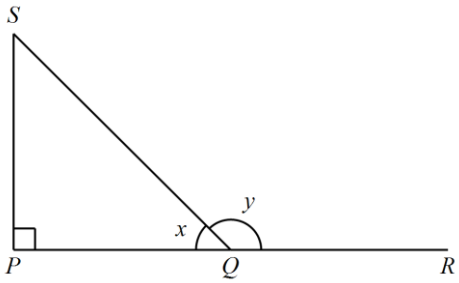
C



D



11 Dalam Rajah 5, *PQR* ialah garis lurus.
In Diagram 5, PQR is a straight line.



Rajah 5
Diagram 5

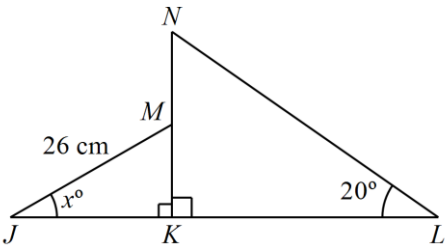
Diberi $\sin x = \frac{12}{20}$, cari $\tan y$.

Given $\sin x = \frac{12}{20}$, *find* $\tan y$.

A $-\frac{16}{12}$ **C** $\frac{12}{16}$

B $-\frac{12}{16}$ **D** $\frac{16}{12}$

12 Dalam Rajah 6, *JKN* dan *LKM* ialah segi tiga bersudut tegak. *JKL* dan *KMN* ialah garis lurus.
In Diagram 6, JKN and LKM are right angled triangles. JKL and KMN are straight lines.



Rajah 6
Diagram 6

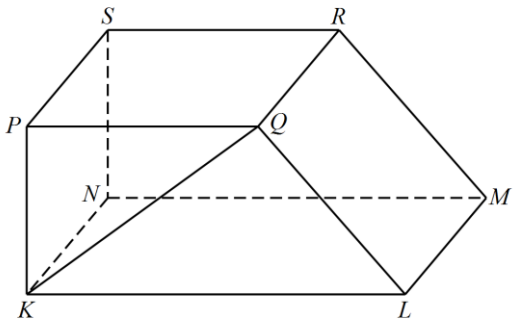
Diberi bahawa $\sin x° = \frac{10}{26}$ dan $KM = MN$.
Hitung panjang, dalam cm, *JKL*.

It is given that $\sin x° = \frac{10}{26}$ *and* $KM = MN$.
Calculate the length, in cm, of JKL.

A 78.95 **C** 141.88

B 82.48 **D** 150.34

13 Rajah 7 menunjukkan satu prisma tegak dengan tapak mengufuk *KLMN*.
Diagram 7 shows a right prism with a horizontal base KLMN.



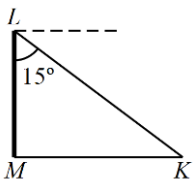
Rajah 7
Diagram 7

Nyatakan sudut di antara garis lurus *QK* dan satah *PKNS*.
State the angle between the straight line QK and the plant PKNS.

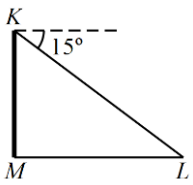
A ∠*QKS* **C** ∠*KQS*
B ∠*KQP* **D** ∠*QKP*

14 Antara rajah berikut, yang manakah mewakili situasi di mana sudut dongak *K* dari *L* ialah 15°?
Which of the following diagram represents the situation where the angle of elevation of K from L is 15°?

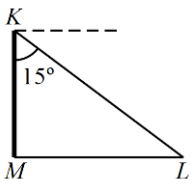
A



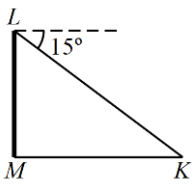
C



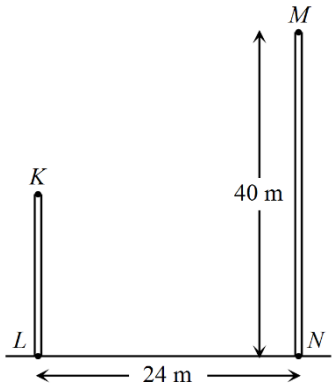
B



D



15 Rajah 8 menunjukkan dua tiang bendera tegak pada satah mengufuk. *K*, *L*, *M* dan *N* ialah empat titik pada tiang-tiang tersebut.
Diagram 8 shows two vertical poles on a horizontal plane. K, L, M and N are four points on the poles.

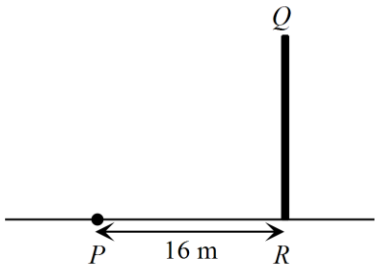


Rajah 8
Diagram 8

Sudut dongak *M* dari *K* ialah 48°.
Hitung sudut tunduk *N* dari *K*.
The angle of elevation of M form K is 48°.
Calculate the angle of depression of N from K.

A 29° 5' **C** 52° 32'
B 37° 28' **D** 60° 55'

16 Rajah 9 menunjukkan sebuah tiang tegak *QR* di atas satah mengufuk. Titik *P* dan *R* terletak di atas satah itu.
Diagram 9 shows a vertical pole QR on a horizontal plane. The points P and R lie on the plane.



Rajah 9
Diagram 9

Sudut dongakan titik *Q* dari *P* ialah 33°.
Cari tinggi, dalam m, tiang itu.
The angle of elevation of point Q from P is 33°. Find the height, in m, of the pole.

A 0.04 **C** 12.50
B 10.39 **D** 24.64

17 $(2n + 2m)(5m + n) =$

A $10m^2 + 12mn + 2n^2$
B $10m^2 + 12mn - 2n^2$
C $10m^2 + 8mn + 2n^2$
D $10m^2 + 8mn - 2n^2$

18 Ungkapkan $\frac{2x^2 + 2}{x} - \frac{2x - 10}{3}$ sebagai satu pecahan tunggal dalam bentuk termudah.
Express $\frac{2x^2 + 2}{x} - \frac{2x - 10}{3}$ *as a single fraction in its simplest form.*

A $\frac{4x^2 + 10x + 6}{3x}$ **C** $\frac{4x^2 + 10x + 6}{x}$
B $\frac{4x^2 - 10x + 6}{3x}$ **D** $\frac{2x^2 - 2x + 12}{x}$

19 Diberi $7s - \frac{5t}{6} = 9$, maka $s =$
Given that $7s - \frac{5t}{6} = 9$, *then* $s =$

A $\frac{9 + 5t}{7}$ **C** $\frac{9 + 5t}{42}$
B $\frac{54 + 5t}{7}$ **D** $\frac{54 + 5t}{42}$

20 Diberi bahawa $P = \frac{1}{5}\sqrt{\frac{h}{Q}}$, ungkapkan h dalam sebutan P dan Q.
Given that $P = \frac{1}{5}\sqrt{\frac{h}{Q}}$, *express* h *in terms of* P *and* Q.

A $h = 5P^2Q$ **C** $h = \frac{P^2}{5Q}$
B $h = 25P^2Q$ **D** $h = \frac{P^2}{25Q}$

21 Diberi $\frac{2n}{9} - 3 = 1$, cari nilai bagi n.
Given $\frac{2n}{9} - 3 = 1$, *find the value of* n.

A 15 **C** 19
B 18 **D** 21

22 $\left(\frac{2}{3}\right)^{-2} =$

A $\frac{9}{4}$ **C** $\frac{4}{3}$
B $\frac{4}{9}$ **D** $\frac{3}{4}$

23 $(4^4 \times 16)^{\frac{1}{2}} \div (q^2)^{\frac{1}{2}} =$

A $\frac{64}{q}$ **C** $64q$
B $\frac{16}{q}$ **D** $16q$

24 Cari penyelesaian untuk $\frac{x - 2}{-6} \geq -4$.
Find the solution for $\frac{x - 2}{-6} \geq -4$.

A $x \leq 26$ **C** $x \geq 26$
B $x \leq 22$ **D** $x \geq 22$

25 Rajah 10 menunjukkan ketinggian, dalam cm, bagi sekumpulan murid.
Diagram 10 shows the heights, in cm, of a group of students.

173	170	167	176	150	162	167	170	176

Rajah 10
Diagram 10

Cari median bagi ketinggian.
Find the median height.

A 153 **C** 173
B 170 **D** 176

26 Satu kontinjen negeri telah memenangi 90 pingat dalam satu pertandingan Sukan Kebangsaan.
Jadual 1 menunjukkan bilangan pingat emas, pingat perak, dan pingat gangsa yang dimenangi oleh kontinjen itu.
A state contingent won 90 *medals in a National Sport competition.*
Table 1 shows the number of gold, silver and bronze medals won by the contingent.

Pingat ***Medals***	**Bilangan pingat** ***Number of medals***
Emas *Gold*	21
Perak *Silver*	$2x$
Gangsa *Bronze*	x

Jadual 1
Table 1

Jika satu carta pai dilukis untuk mewakili pingat-pingat tersebut, hitung sudut sektor yang mewakili bilangan pingat gangsa.
If a pie chart is drawn to represent the medals, calculate the angle of the sector which represents the number of bronze medals.

A 84° **C** 184°
B 92° **D** 268°

27 Jadual 2 menunjukkan skor yang diperoleh Omar dalam suatu permainan.
Table 2 shows the score obtained by Omar in a game.

Skor ***Score***	1	2	3	4	5	6
Kekerapan ***Frequency***	8	5	7	1	8	6

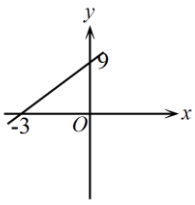
Jadual 2
Table 2

Hitung min bagi skor.
Calculate the mean score.

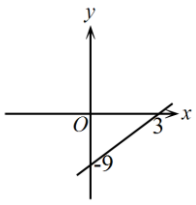
A 2.9 **C** 3.4
B 3.0 **D** 3.9

28 Antara graf yang berikut, yang manakah mewakili $y = -9 + 3x$?
Which of the following graphs represents $y = -9 + 3x$*?*

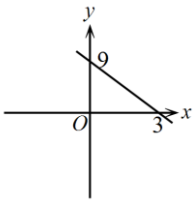
A



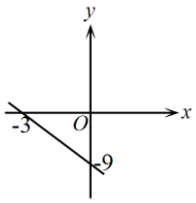
C



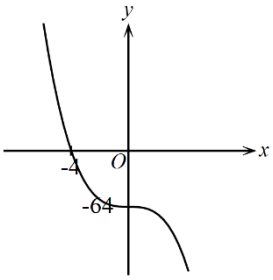
B



D



29 Rajah 11 menunjukkan suatu graf pada satah Cartesan.
Diagram 11 shows a graph on a Cartesian plane.

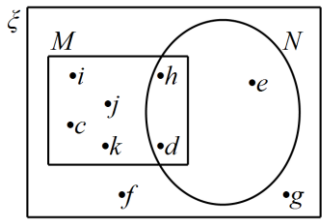


Rajah 11
Diagram 11

Antara yang berikut, yang manakah adalah persamaan bagi graf itu?
Which of the following is the equation of the graph?

A $y = 4x^3 + 64$ **C** $y = -4x^3 - 64$
B $y = 4x^3 - 64$ **D** $y = -4x^3 + 64$

30 Rajah 12 ialah sebuah gambar rajah Venn yang menunjukkan unsur-unsur set semesta ξ, set *M*, dan set *N*.
Diagram 12 is a Venn diagram which shows the elements of the universal set ξ, set M and set N.

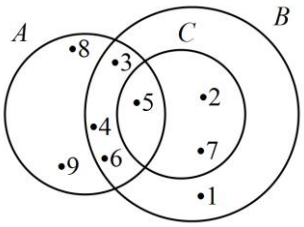


Rajah 12
Diagram 12

Senaraikan semua unsur bagi set *N*'.
List all the elements of set N'.

A {*c*, *d*, *f*, *g*, *h*, *i*, *j*, *k*}
B {*c*, *f*, *g*, *i*, *j*, *k*}
C {*c*, *g*, *i*, *j*, *k*}
D {*f*, *g*}

31 Rajah 13 ialah sebuah gambar rajah Venn yang menunjukkan unsur-unsur bagi set *A*, *B*, dan *C*.
Diagram 13 is a Venn diagram which shows the elements of sets A, B and C.



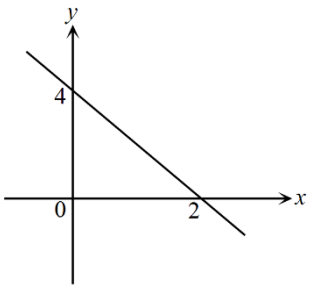
Rajah 13
Diagram 13

Jika set semesta ξ = *A* ∪ *B* ∪ *C*, apakah unsur-unsur bagi set *B* ∩ *C*'?
If the universal set ξ = A ∪ B ∪ C, what is the elements of set B ∩ C'?

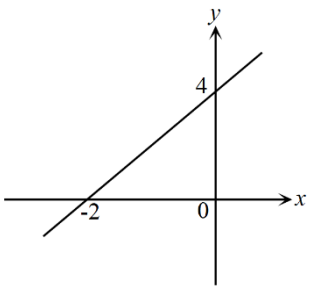
A {3, 4, 6}
B {1, 3, 4, 6}
C {1, 3, 4, 5, 6}
D {1, 2, 3, 4, 5, 6, 7}

32 Antara graf-graf berikut, yang manakah menunjukkan satu garis lurus dengan kecerunan $\frac{1}{2}$?
Which of the following graphs shows a straight line with a gradient of $\frac{1}{2}$ *?*

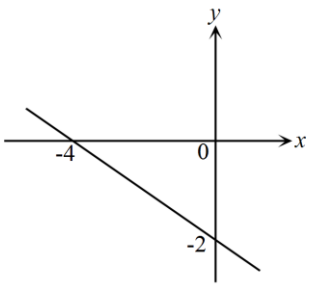
A



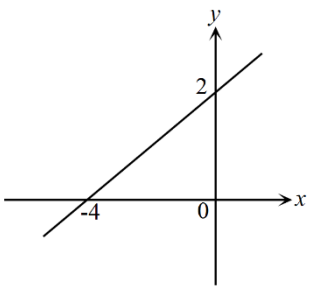
B



C



D



33 Diberi bahawa tiga titik, $K(9, -4)$, $L(-5, 3)$ dan $M(9, -3)$ terletak pada satah Cartesan. N ialah titik tengah garis lurus KL.
Cari kecerunan bagi garis lurus NM.
It is given that three points, K(9, -4), L(-5, 3) and M(9, -3) lie on a Cartesian plane. N is the midpoint of the straight line KL.
Find the gradient of the straight line NM.

A $-\frac{3}{7}$ **C** $\frac{3}{7}$

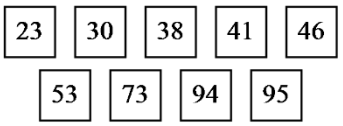
B $-\frac{7}{3}$ **D** $\frac{7}{3}$

34 Sebuah kotak mengandungi 51 biji guli dalam dua warna, kuning dan putih. Sebiji guli dipilih secara rawak dari kotak itu. Kebarangkalian sebiji guli kuning dipilih ialah $\frac{11}{17}$. Cari bilangan guli putih yang perlu ditambah ke dalam kotak itu supaya kebarangkalian sebiji guli kuning dipilih ialah $\frac{11}{29}$.
A box contains 51 *marbles in two colours, yellow and white. A marble is chosen at random from the box. The probability that a yellow marble is chosen is* $\frac{11}{17}$. *Find the number of white marbles need to be added into the box so that the probability that a yellow marble is chosen is* $\frac{11}{29}$.

A 18 **C** 54

B 36 **D** 72

35 Rajah 14 menunjukkan beberapa keping kad nombor.
Diagram 14 shows some number cards.



Rajah 14
Diagram 14

Sekeping kad dipilih secara rawak. Nyatakan kebarangkalian bahawa nombor perdana dipilih.
A card is picked at random. State the probability that a prime number is picked.

A $\frac{1}{3}$ **C** $\frac{5}{9}$

B $\frac{4}{9}$ **D** $\frac{8}{9}$

36 Jadual manakah yang mewakili hubungan $t \propto s^2$?
Which table represents the relation of $t \propto s^2$?

A

s	1	2	3	4
t	1	16	81	256

B

s	1	2	3	4
t	4	20	54	112

C

s	1	2	3	4
t	4	16	36	64

D

s	1	2	3	4
t	4	10	18	28

37 Diberi bahawa n berubah secara songsang dengan punca kuasa dua m dan $n = 2$ apabila $m = 9$.
Hitung nilai n apabila $m = 36$.
It is given that n varies inversely as the square root of m and $n = 2$ *when* $m = 9$.
Calculate the value of n when $m = 36$.

A 1 **C** $\frac{1}{6}$

B 2 **D** $\frac{1}{36}$

38 Hubungan di antara P, q, dan r ialah $P \propto \frac{q^2}{r}$.
Diberi bahawa $P = 10$ apabila $q = 4$ dan $r = 8$.
Hitung nilai P apabila $q = 4$ dan $r = 5$.

The relation between P, q and r is $P \propto \frac{q^2}{r}$. *It is given that* $P = 10$ *when* $q = 4$ *and* $r = 8$.
Calculate the value of P when $q = 4$ *and* $r = 5$.

A 16
C $\frac{16}{5}$
B $\frac{4}{5}$
D $\frac{16}{25}$

39 Diberi $(-6 \ \ 6)\begin{pmatrix} a \\ -2 \end{pmatrix} = (18)$, cari nilai a.

Given that $(-6 \ \ 6)\begin{pmatrix} a \\ -2 \end{pmatrix} = (18)$, *find the value of a.*

A 6
C −5
B 5
D −6

40 $(2 \ \ \frac{1}{2})\begin{pmatrix} 7 & 4 \\ -4 & 8 \end{pmatrix} =$

A $\begin{pmatrix} 12 \\ 12 \end{pmatrix}$
C $(12 \ \ 12)$
B $\begin{pmatrix} 6 \\ 6 \end{pmatrix}$
D $(6 \ \ 6)$

Skema Jawapan beserta penerangan dibuat dalam bentuk bengkel online percuma disini:
https://mathscatch.com/mt/mtf5