INTENSIF ASAS

TINGKATAN 5

MATEMATIK

TOPIK
Back To Basic Linear Equation,Circles,Solid Geometry

Professional Maths Centre™

MATHS CATCH

Dwibahasa

Anda Ibu Bapa Atau Guru?

DAPATKAN SEKARANG

1. Lebih 50 Live Video **CARA BANTU ANAK** Kuasai Matematik
2. Lebih **30 EBOOK SOALAN** Latihan Matematik Tahun 1 – Tingkatan 5
3. Koleksi Soalan Peperiksaan **PERCUBAAN** yang lepas-lepas
4. Percuma Soalan Peperiksaan **AKHIR TAHUN** Edisi Khas
5. **CADANGAN TAJUK** dan Soalan Pilihan menjelang peperiksaan
6. **'CASE STUDY'** bagaimana saya bantu ribuan pelajar saya melonjak dari **E NAIK KE A** dan lain-lain
7. Lebih dari **30 KAJIAN KES PETUA & STRATEGI** menguasai matematik yang dilakukan oleh MathsCatch Team

Bagi yang belum mendaftar emel.Cadangan saya daftar segera.Kerana lebih banyak info akan saya kirimkan melalui emel.Daftar Percuma disini

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BAHAGIAN 1

1 Calculate the value of x and of y that satisfy the following simultaneous linear equations:
Hitungkan nilai x dan nilai y yang memuaskan persamaan linear serentak berikut:

$$x + 3y = -2$$
$$2x - y = 3$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

2 Calculate the value of and of that satisfy the following simultaneous linear equations:
Hitungkan nilai dan nilai yang memuaskan persamaan linear serentak berikut:

$$s - 3t = 5$$
$$2s + 5t = 10$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

3 The sum of two numbers is 62. The difference between the two numbers is 6.
Find the values of the two numbers.
Hasil tambah dua nombor ialah 62. *Perbezaan antara dua nombor ialah* 6. *Cari nilai bagi dua nombor itu.*

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

4 Diagram 1 is an open rectangle paper box with length $5b$ cm and width $(5b - 2)$ cm. Four squares with sides of length 2 cm are cut out at each of the corners and then the paper is folded along the dotted lines.
Rajah 1 ialah sebuah kotak kertas terbuka yang berbentuk segi empat tepat dengan panjang $5b$ cm *dan lebar* $(5b - 2)$ cm. *Empat buah segi empat sama dengan panjang sisinya* 2 cm *telah dipotong keluar di setiap penjuru dan kemudiannya kertas itu dilipat di atas garis bertitik.*

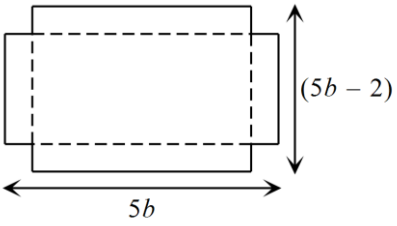

Diagram 1
Rajah 1

Form a quadratic expression for the volume of the box.
Bentuk satu persamaan kuadratik bagi isipadu kotak itu.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

5 Form a quadratic expression by multiplying each of the following.
Bentukkan suatu persamaan kuadratik dengan mendarab setiap yang berikut.
(a) $5m(5m + 8)$
(b) $(2n + 9)(2n - 3)$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

6 State whether each of the following is a quadratic equation with one unknown or not.
Nyatakan sama ada setiap yang berikut merupakan suatu persamaan kuadratik dengan satu anu atau tidak.

(a) $(p-6)^2 = 8$

(b) $\frac{7}{8}n^2 = 6 + 8n$

(c) $\frac{2h+7}{5} = 4h^2$

(d) $3 + \frac{6}{7n^2} = 7n$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

7 Calculate the value of and of that satisfy the following simultaneous linear equations:
Hitungkan nilai dan nilai yang memuaskan persamaan linear serentak berikut:

$$3p + \frac{1}{3}q = 16$$
$$4p - q = 4$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

8 Calculate the value of p and of q that satisfy the following simultaneous linear equations:
Hitungkan nilai p dan nilai q yang memuaskan persamaan linear serentak berikut:

$$p - q = 9$$
$$9p - 10q = -8$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

9 Calculate the value of x and of y that satisfy the following simultaneous linear equations:
Hitungkan nilai x dan nilai y yang memuaskan persamaan linear serentak berikut:

$$2x + y = 1$$
$$x + y = 4$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

10 Calculate the value of m and of n that satisfy the following simultaneous linear equations:
Hitungkan nilai m dan nilai n yang memuaskan persamaan linear serentak berikut:

$$m - n = 8$$
$$3m + 2n = 14$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

11 Diagram 2 shows two sectors OWX and OYZ with the same centre O. OZX is a straight line.
Rajah 2 menunjukkan dua sektor bulatan OWX dan OYZ yang sama-sama berpusat O. OZX ialah garis lurus.

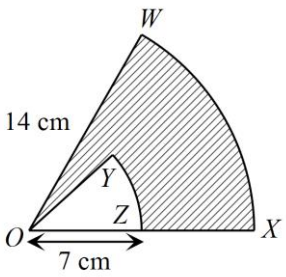

Diagram 2
Rajah 2

It is given that $\angle WOX = 60°$ and $\angle YOZ = 42°$.

Diberi ∠WOX = 60° dan ∠YOZ = 42°.

Using $\pi = \frac{22}{7}$, calculate

Dengan menggunakan $\pi = \frac{22}{7}$, *hitungkan*

(a) the perimeter, in cm, of the sector *OWX*,
perimeter, dalam cm, sektor OWX,

(b) the area, in cm^2, of the shaded region.
luas, dalam cm^2, *kawasan yang berlorek.*

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

---

12 Calculate the value of *s* and of *t* that satisfy the following simultaneous linear equations:
Hitungkan nilai s dan nilai t yang memuaskan persamaan linear serentak berikut:

$$2s - t = 3$$
$$s + 3t = -2$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

13 Calculate the value of *p* and of *q* that satisfy the following simultaneous linear equations:
Hitungkan nilai p dan nilai q yang memuaskan persamaan linear serentak berikut:

$$p + 5q = -3$$
$$\frac{1}{5}p - q = -3$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

14 In Diagram 3, *OPQ* is a sector of a circle with centre *O* and *RSTU* is a semicircle with centre *R*. *PSRUO* is a straight line.
Dalam rajah 3, OPQ ialah sektor kepada bulatan berpusat O dan RSTU ialah semibulatan berpusat R. PSRUO ialah garis lurus.

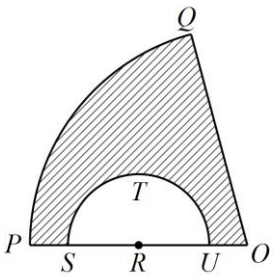

Diagram 3
Rajah 3

It is given that *PO* = 25 cm, *RS* = 3.5 cm and ∠*POQ* = 75°.
Diberi PO = 25 cm, RS = 3.5 cm dan ∠POQ = 75°.

Use $\pi = \frac{22}{7}$, and give the answer correct to two decimal places.
Calculate
Guna $\pi = \frac{22}{7}$ *dan beri jawapan betul kepada dua tempat perpuluhan.*
Hitung

(a) the area, in cm^2, of the shaded region.
luas, dalam cm^2, *kawasan yang berlorek.*

(b) the perimeter, in cm, of the shaded region.
perimeter, dalam cm, kawasan yang berlorek.

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

15 Diagram 4 shows five hemisphres arranged side by side in a straight line.
Rajah 4 menunjukkan lima hemisfera yang disusun tepi ke tepi pada satu garis lurus.

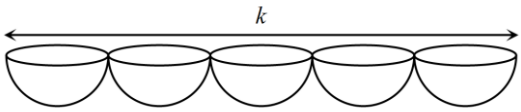

Diagram 4
Rajah 4

Given that the volume of a hemisphere is $16\frac{16}{21}$ cm^3. Find the value of k.
(Use $\pi = \frac{22}{7}$)

Diberi isi padu setiap hemisfera ialah $16\frac{16}{21}$ *cm*^{3}*. Cari nilai k.*
(Guna $\pi = \frac{22}{7}$ *)*

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

16 Write each of the following quadratic equation in the general form.
Tulis setiap yang berikut dalam bentuk yang lazim.
(a) $y(4 + y) = 3y^2 - 5$
(b) $h^2 + (5h - 1)^2 = -1$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

17 Calculate the value of m and of n that satisfy the following simultaneous linear equations:
Hitungkan nilai m dan nilai n yang memuaskan persamaan linear serentak berikut:

$$m - n = 5$$
$$3m - 4n = -2$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

18 Calculate the value of m and of n that satisfy the following simultaneous linear equations:
Hitungkan nilai m dan nilai n yang memuaskan persamaan linear serentak berikut:

$$m - 4n = -2$$
$$\frac{3}{2}m - 4n = -1$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

19 Factorise completely.
Faktorkan dengan lengkapnya.
(a) $8p(p - 7) + 6(3p + 5)$
(b) $19p^2 - 19q^2$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

20 Solve the quadratic equation $x(4x + 1) = 6 + 6x$.
Selesaikan persamaan kuadratik $x(4x + 1) = 6 + 6x$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

21 Diagram 5 shows sector *OACB* with centre *O* and semicircle *POQC* with centre *P*.
Rajah 5 menunjukkan sektor OACB yang berpusat O dan semibulatan POQC yang berpusat Q.

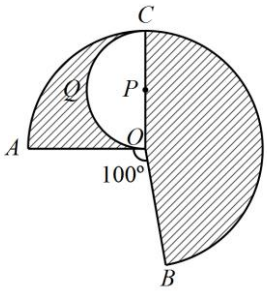

Diagram 5
Rajah 5

It is given that *OA* = 28 cm.
Diberi OA = 28 cm.

Using $\pi = \frac{22}{7}$, calculate

Denga menggunakan $\pi = \frac{22}{7}$, *hitung*

(a) the perimeter, in cm, of the whole diagram,
perimeter, dalam cm, seluruh rajah itu,

(b) the area, in cm^2, of the shaded region.
luas, dalam cm^2, *kawasan yang berlorek.*

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

---

22 (a) Factorise $3(x^2 + 8) + 18x$.
Faktorkan $3(x^2 + 8) + 18x$.

(b) Solve the equation $\frac{1}{6}y = \frac{y^2 - 7}{4}$.
Selesaikan persamaan $\frac{1}{6}y = \frac{y^2 - 7}{4}$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

23 Factorise completely.
Faktorkan dengan lengkapnya.

(a) $(5x^2 - x) - (4x - 2x^2)$

(b) $9y - 4y^3$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

24 In Diagram 6, *OMN* is a quadrant of a circle with centre *O* and *OMK* is a semicircle with centre *L*.
Dalam Rajah 6, OMN ialah sukuan bulatan berpusat O dan OMK ialah semibulatan berpusat L.

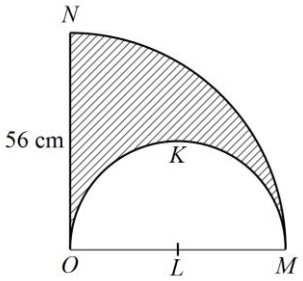

Diagram 6
Rajah 6

Using $\pi = \frac{22}{7}$, calculate

Menggunakan $\pi = \frac{22}{7}$, *hitung*

(a) the perimeter, in cm, of the shaded region,
perimeter, dalam cm, kawasan yang berlorek,

(b) the area, in cm^2, of the shaded region.
luas, dalam cm^2, *kawasan yang berlorek.*

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

25 Solve the quadratic equation $x^2 - 8x - 1 = 2(x + 5)$.
Selesaikan persamaan kuadratik $x^2 - 8x - 1 = 2(x + 5)$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

26 Diagram 7 shows a composite solid comprises of a cylinder and a hemisphere.
Rajah 7 menunjukkan sebuah pepejal gabuhan yang terdiri daripada sebuah silinder dan sebuah hemisfera.

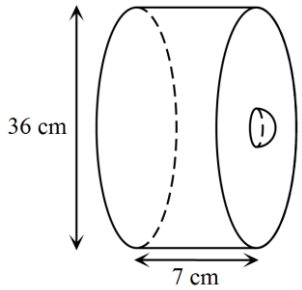

Diagram 7
Rajah 7

Given that the diameter of the hemisphere is 6 cm, calculate the volume, in cm^3, of the solid.
(Use $\pi = \frac{22}{7}$)

Diberi diameter hemisfera itu ialah 6 cm, Hitung isi padu pepejal itu, dalam cm^3.
(Guna $\pi = \frac{22}{7}$*)*

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

27 Calculate the value of m and of n that satisfy the following simultaneous linear equations:
Hitungkan nilai m dan nilai n yang memuaskan persamaan linear serentak berikut:

$$2m - 3n - 26 = 0$$
$$5m + 7n + 51 = 0$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

28 Diagram 8 shows quadrant OFG and semicircle $OHIJ$, both with centre O.
Rajah 8 menunjukkan sukuan bulatan OFG dan semibulatan OHIJ, yang kedua-duanya berpusat O.

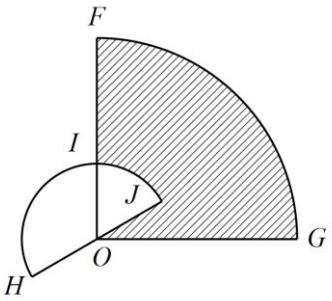

Diagram 8
Rajah 8

It is given that OF = 21 cm, OH = 7 cm and $\angle IOJ = 60°$.
Diberi $OF = 21$ *cm,* $OH = 7$ *cm dan* $\angle IOJ = 60°$.

Using $\pi = \frac{22}{7}$, calculate

Denga menggunakan $\pi = \frac{22}{7}$*, hitung*

(a) the area, in cm^2, of the shaded region.
luas, dalam cm^2*, kawasan yang berlorek.*

(b) the perimeter, in cm, of the whole diagram.
perimeter, dalam cm, seluruh rajah itu.

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

29 Diagram 9 shows a composite solid formed by the combination of a right prism and a cube. *KLMN* is the uniform cross-section of the prism.
Rajah 9 menunjukkan sebuah gabungan pepejal yang terbentuk daripada cantuman sebuah prisma tegak dan sebuah kubus. KLMN ialah keratan rentas seragam prisma tersebut.

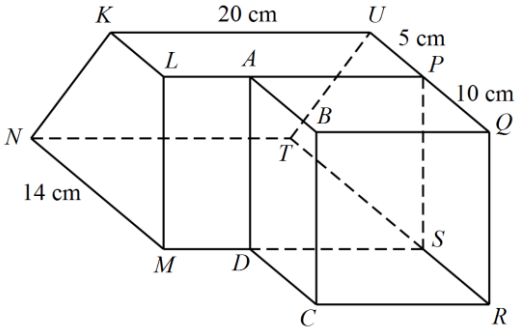

Diagram 9
Rajah 9

Calculate the volume, in cm^3, of the composite solid.
Hitung isi padu, dalam cm^3, bagi gabungan pepejal tersebut.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

30 Diagram 10 shows a combined solid consists of a right prism and a cylinder. Trapezium *ABCD* is the uniform cross section of the prism.
Rajah 10 menunjukkan sebuah gabungan pepejal yang terdiri daripada sebuah prisma tegak dan sebuah silinder. Trapezium ABCD ialah keratan rentas seragam prisma itu.

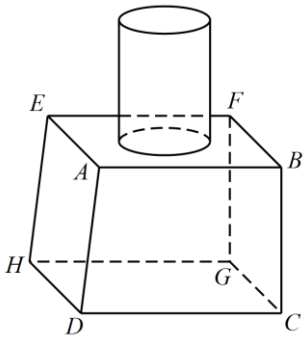

Diagram 10
Rajah 10

Given *AB* = 23 cm, *DC* = 27 cm, *BC* = 5 cm and *FB* = 18 cm. The diameter and height of the cylinder is 7 cm and 10 cm respectively.
Diberi AB = 23 cm, DC = 27 cm, BC = 5 cm, dan FB = 18 cm. Diameter dan tinggi silinder itu ialah 7 cm dan 10 cm masing-masing.
Calculate the volume, in cm^3, of the solid.
Hitungkan isi padu, dalam cm^3, pepejal itu.
[Use $\pi = \frac{22}{7}$]

[Guna $\pi = \frac{22}{7}$]

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

31 Solve the following equations:
Selesaikan persamaan-persamaan berikut:
(a) $4p^2 = 10p$
(b) $5q(3q + 1) - q = 3$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

32 (a) Factorise $6m(m-3)+19m$.
Faktorkan $6m(m-3)+19m$.

(b) Solve the equation $(n-1)(2n-10)-24=0$.
Selesaikan persamaan $(n-1)(2n-10)-24=0$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

33 Diagram 11 shows a combined solid consists of a right prism and a half circular cylinder which joined at rectangular plane *ACGE*. *ACD* is the uniform cross section of the prism.
Rajah 11 menunjukkan sebuah gabungan pepejal yang terdiri daripada sebuah prisma tegak dan sebuah separuh silinder yang tercantum pada satah ACGE. ACD ialah keratan rentas seragam prisma itu.

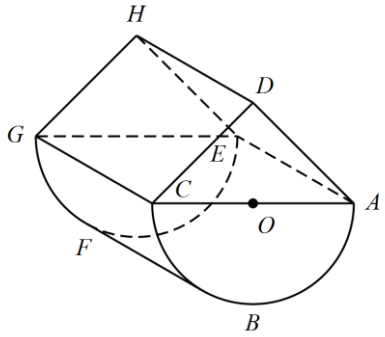

Diagram 11
Rajah 11

Given the diameter of the half circular cylinder is 14 cm, $AE = 6$ cm, $OA = OC$ and $AD = CD$.
Diberi diameter separuh silinder itu ialah 14 cm, AE = 6 cm, OA = OC, dan AD = CD.
Using $\pi = \frac{22}{7}$, calculate
Gunakan $\pi = \frac{22}{7}$, *hitung*

(a) the volume, in cm^3, of the half circular cylinder,
isi padu, dalam cm^3, *separuh silinder itu,*

(b) the length, in cm, of *OD*, if the total volume of the solid is 952 cm^3.
panjang, dalam cm, OD, jika jumlah isi padu pepejal itu ialah 952 cm^3.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

34 Calculate the value of $\frac{p}{q}$ from the following simultaneous linear equations:
Hitungkan nilai $\frac{p}{q}$ *daripada persamaan linear serentak berikut:*

$$4(2p+5q)=4$$
$$\frac{5p}{5}-4q=7$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

35 Diagram 12 shows a solid formed by joining a cone and a hemisphere.
Rajah 12 menunjukkan sebuah pepejal yang terbentuk daripada gabungan sebuah kon dan sebuah hemisfera.

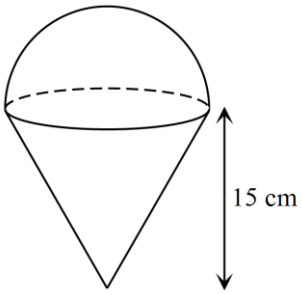

Diagram 12
Rajah 12

The radius of cone is equal to the radius of the hemisphere = 6 cm.
Using $\pi = \frac{22}{7}$, calculate the volume, in cm^3, of the combined solid.
Jejari kon adalah sama dengan jejari hemisfera = 6 cm.

Menggunakan $\pi = \frac{22}{7}$ *, hitung isi padu, dalam* cm^3*, gabungan pepejal tersebut.*

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

36 Diagram 13 shows a cylindrical solid. A hemisphere shown by the shaded region, is removed from the solid.
Rajah 13 menunjukkan sebuah pepejal berbentuk silinder. Kawasan berlorek yang berbentuk hemisfera telah dikeluarkan dari pepejal itu.

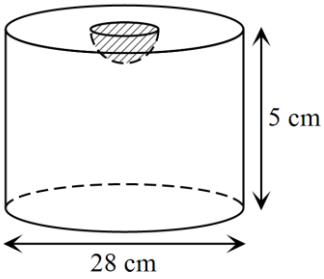

Diagram 13
Rajah 13

Given that the diameter of the hemisphere is 8 cm, calculate the volume, in cm^3, of the remaining solid.
(Use $\pi = \frac{22}{7}$)

Diberi diameter hemisfera itu ialah 8 cm, Hitung isi padu pepejal yang tinggal, dalam cm^3*.*
(Guna $\pi = \frac{22}{7}$ *)*

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

37 Diagram 14 shows a circle with diameter 98 cm and a quadrant of a circle *PQR*.
Rajah 14 menunjukkan sebuah bulatan dengan diameter 98 cm dan sebuah sukuan bulatan PQR.

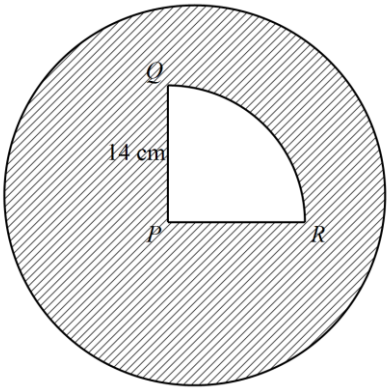

Diagram 14
Rajah 14

Using $\pi = \frac{22}{7}$, calculate

Guna $\pi = \frac{22}{7}$ *, hitung*

(a) the perimeter, in cm, of the shaded region,
perimeter, dalam cm, kawasan yang berlorek,

(b) the area, in cm^2, of the shaded region.
luas, dalam cm^2*, kawasan yang berlorek.*

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

38 Diagram 15 shows a solid cone with radius 12 cm and height 35 cm. A cylinder with radius 3 cm and height 14 cm is taken out of the solid.
Rajah 15 menunjukkan sebuah kon pepejal dengan jejari 12 cm dan tinggi 35 cm. Sebuah silinder dengan jejari 3 cm dan tinggi 14 cm dikeluarkan daripada pepejal itu.

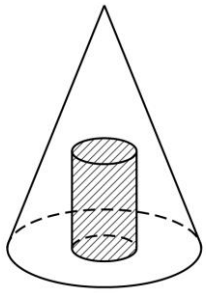

Diagram 15
Rajah 15

Calculate the volume, in cm^3, of the remaining solid.
Hitung isi padu, dalam cm^3, pepejal yang tinggal.

[Use $\pi = \frac{22}{7}$]

[Guna $\pi = \frac{22}{7}$]

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

39 Solve the quadratic equation $\frac{x(x-5)}{6} = x - 5$.

Selesaikan persamaan kuadratik $\frac{x(x-5)}{6} = x - 5$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

40 Diagram 16 shows a solid hemisphere, with a solid cone is taken out from it.
Rajah 16 menunjukkan sebuah pepejal berbentuk hemisfera dengan sebuah pepejal berbentuk kon dikeluarkan daripadanya.

Diagram 16
Rajah 16

The radius of the hemispehre is 6 cm. The radius and height of the cone is 3 cm and 4.2 cm respectively. Calculate the volume, in cm^3, of the remaining solid. Give answer correct to two decimal places.
Jejari hemisfera itu ialah 6 cm. Jejari dan tinggi kon itu ialah 3 cm dan 4.2 cm masing-masing. Hitung isi padu, dalam cm^3, bagi pepejal yang tinggal. Beri jawapan beutl kepada dua tempat perpuluhan.

[Use $\pi = \frac{22}{7}$]

[Guna $\pi = \frac{22}{7}$]

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

41 Solve the following equations:
Selesaikan persamaan-persamaan berikut:
(a) $4m(4m - 5) + 4 = 0$
(b) $(n + 7)^2 = 25n^2$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

42 Diagram 17 shows a composite solid comprises of a hemisphere and a cone.
Rajah 17 menunjukkan sebuah pepejal gubahan yang terdiri daripada sebuah hemisfera dan sebuah kon.

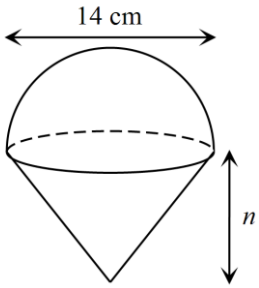

Diagram 17
Rajah 17

Given that the volume of the solid is 1 694 cm^3. Find the value of n.
(Use $\pi = \frac{22}{7}$)

Diberi isi padu pepejal itu ialah 1 694 cm^3. Cari nilai n.
(Guna $\pi = \frac{22}{7}$)

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

43 Solve the following equations:
Selesaikan persamaan-persamaan berikut:

(a) $4p^2 + \frac{p}{2} = 0$

(b) $\frac{4q}{5} = \frac{10 - 7q}{q}$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

44 Solve the equation $x - 4 = \frac{7 - 4x}{4x}$.

Selesaikan persamaan $x - 4 = \frac{7 - 4x}{4x}$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

45 Diagram 18 shows quadrant *OST* and sector *OUV*, both with centre *O*. *OTU* is a straight line.
Rajah 18 menunjukkan sukuan bulatan OST dan sektor OUV, yang kedua-duanya berpusat O. OTU ialah garis lurus.

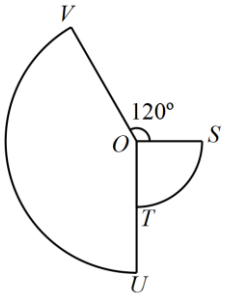

Diagram 18
Rajah 18

It is given that OS = 14 cm, OV = 35 cm and ∠SOV = 120°.
Diberi OS = 14 cm, OV = 35 cm dan ∠SOV = 120°.

Using $\pi = \frac{22}{7}$, calculate

Denga menggunakan $\pi = \frac{22}{7}$, *hitung*

(a) the perimeter, in cm, of the whole diagram,
perimeter, dalam cm, seluruh rajah itu,

(b) the area, in cm^2, of the whole diagram.
luas, dalam cm^2, seluruh rajah itu.

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

46 Calculate the value of m and of n that satisfy the following simultaneous linear equations:
Hitungkan nilai m dan nilai n yang memuaskan persamaan linear serentak berikut:

$$4m + n = -10$$
$$5m - 6n = 2$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

47 Diagram 19 shows a composite solid comprises of a cylinder and a right cone.
Rajah 19 menunjukkan sebuah pepejal gubahan yang terdiri daripada sebuah silinder dan sebuah kon tegak.

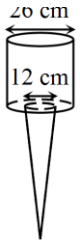

Diagram 19
Rajah 19

The height of the cylinder is 7 cm while the height of the cone is 14 cm. Find the volume of the solid.
(Use $\pi = \frac{22}{7}$)

Tinggi silinder itu ialah 7 cm manakala tinggi kon itu ialah 14 cm. Cari isi padu bagi pepejal itu.
(Guna $\pi = \frac{22}{7}$)

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

48 Solve the quadratic equation $2x^2 - x = 2(3 + 5x)$.
Selesaikan persamaan kuadratik $2x^2 - x = 2(3 + 5x)$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

49 Using factorisation, solve the quadratic equation $10x^2 - 12 = -19x$.
Dengan menggunakan pemfaktoran, selesaikan persamaan kuadratik $10x^2 - 12 = -19x$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

50 Solve the following quadratic equation using factorisation method.
Selesaikan persamaan kuadratik berikut dengan menggunakan kaedah pemfaktoran.

$$x(17x + 15) = 38$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

51 Diagram 20 shows a cylindrical solid. The shaded region in the shape of a right cone is removed.
Rajah 20 menunjukkan sebuah pepejal berbentuk silinder. Kawasan berlorek yang berbentuk kon tegak telah dikeluarkan.

Diagram 20
Rajah 20

The height of the cylinder is 21 cm while the height of the cone is 14 cm. Find the volume, in cm^3, of the remaining solid.
(Use $\pi = \frac{22}{7}$)
Tinggi silinder itu ialah 21 cm manakala tinggi kon itu ialah 14 cm. Cari isi padu, dalam cm^3, bagi pepejal yang tinggal.
(Guna $\pi = \frac{22}{7}$)

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

52 Diagram 21 shows a composite solid comprising of a cuboid and a right pyramid.
Rajah 21 menunjukkan sebuah pepejal gubahan yang terdiri daripada sebuah kuboid dan sebuah piramid.

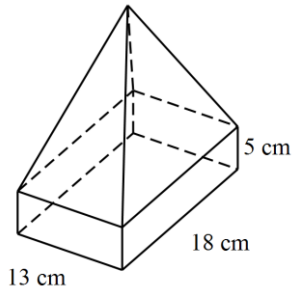

Diagram 21
Rajah 21

Given that the volume of the solid is 2 184 cm^3, find the height of the pyramid.
Diberi isi padu pepejal itu ialah 2 184 cm^3, cari tinggi piramid itu.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

53 Solve the equation $3x^2 = 6(4x - 7) - 6$.
Selesaikan persamaan $3x^2 = 6(4x - 7) - 6$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

54 Solve the equation $\frac{5x^2 + x}{4x - 1} = 2$.
Selesaikan persamaan $\frac{5x^2 + x}{4x - 1} = 2$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

55 (a) Factorise $3m^2 - 7m + 4$.
Faktorkan $3m^2 - 7m + 4$.

(b) Solve the equation $\frac{2n^2 + 3}{7n} = \frac{5}{6}$.
Selesaikan persamaan $\frac{2n^2 + 3}{7n} = \frac{5}{6}$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

56 Diagram 22 shows a composite solid comprises of a cuboid and a half cylinder.
Rajah 22 menunjukkan sebuah pepejal gubahan yang terdiri daripada sebuah kuboid dan sebuah separuh silinder.

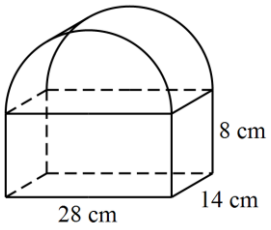

Diagram 22
Rajah 22

Find the volume of the solid.
(Use $\pi = \frac{22}{7}$)
Cari isi padu bagi pepejal itu.
(Guna $\pi = \frac{22}{7}$)

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

57 Diagram 23 shows two sectors *OPQ* and *ORST* with the same centre *O*. *OUT* is a semicircle with diameter *OT* and *OT* = 2*PO*. *POT* and *OQR* are straight lines.
Rajah 23 menunjukkan dua sektor bulatan OPQ dan ORST yang sama-sama berpusat O. OUT ialah semibulatan dengan OT sebagai diameter dan OT = 2PO. POT dan OQR ialah garis lurus.

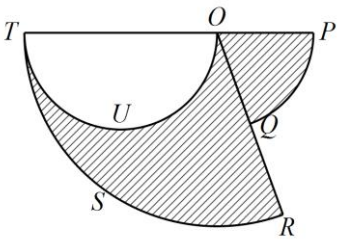

Diagram 23
Rajah 23

PO = 14 cm and ∠*POQ* = 70°.
PO = 14 cm dan ∠POQ = 70°.
Using $\pi = \frac{22}{7}$, calculate
Dengan menggunakan $\pi = \frac{22}{7}$, hitungkan

(a) the perimeter, in cm, of the whole diagram,
perimeter, dalam cm, seluruh rajah itu,
(b) the area, in cm^2, of the shaded region.
luas, dalam cm^2, kawasan yang berlorek.

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

---

58 Diagram 24 shows two sectors *OMN* and *OPQ* with the same centre *O*. *OMNR* is a quadrant of a circle with centre *O*. *ONP* and *ORQ* are straight lines.
Rajah 24 menunjukkan dua sektor bulatan OMN dan OPQ yang sama-sama berpusat O. OMNR ialah sukuan bulatan berpusat O. ONP dan ORQ ialah garis lurus.

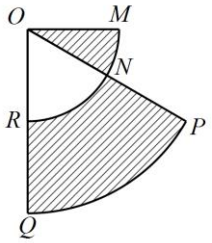

Diagram 24
Rajah 24

OR = *RQ* = 7 cm and ∠*POQ* = 60°.
OR = RQ = 7 cm dan ∠POQ = 60°.
Using $\pi = \frac{22}{7}$, calculate
Dengan menggunakan $\pi = \frac{22}{7}$, hitungkan

(a) the perimeter, in cm, of the whole diagram,
perimeter, dalam cm, seluruh rajah itu,
(b) the area, in cm^2, of the shaded region.
luas, dalam cm^2, kawasan yang berlorek.

[6 *marks*]
[6 *markah*]

Answer:
Jawapan:

59 Factorise completely.
Faktorkan dengan lengkapnya.
(a) $20p^2 - p - 21$
(b) $10q^3 - 10q$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

60 Solve the following quadratic equation:
Selesaikan persamaan kuadratik berikut:

$$(2x + 5)^2 = x + 10$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

61 Calculate the value of $s - t$ from the following simultaneous linear equations:
Hitungkan nilai $s - t$ daripada persamaan linear serentak berikut:

$$5s - t = 3$$
$$3s - 2t = -1$$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

62 Factorise completely.
Faktorkan dengan lengkapnya.
(a) $21 + 98x^2$
(b) $2(2y + 3)^2 + 9(2y + 3) - 11$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

63 Factorise completely.
Faktorkan dengan lengkapnya.
(a) $6s^2 - 39s$
(b) $8t^2 + t - 30$

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

64 Solve the quadratic equation $\frac{3(3x^2 + 2)}{5} = 3x$.
Selesaikan persamaan kuadratik $\frac{3(3x^2 + 2)}{5} = 3x$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

65 Diagram 25 shows a combined solid consists of a right prism and a pyramid which are joined at the plane *PQUT*. Trapezium *PQRS* is the uniform cross section of the prism. *XUV* is a straight line.
Rajah 25 menunjukkan sebuah gabungan pepejal yang terdiri daripada sebuah prisma tegak dan sebuah piramid yang tercantum pada satah PQUT. Trapezium PQRS ialah keratan rentas seragam prisma itu.

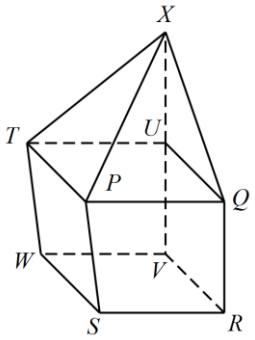

Diagram 25
Rajah 25

Given PQ = 19 cm, SR = 17 cm, TP = 12 cm and XU = 14 cm.
Diberi PQ = 19 cm, SR = 17 cm, TP = 12 cm dan XU = 14 cm.

(a) Calculate the volume, in cm^3, of the pyramid.
Hitungkan isi padu, dalam cm^3, piramid tegak itu.

(b) Calculate the length, in cm, of *QR* if the volume of the combined solid is 3656 cm^3.
Hitungkan pnajang, dalam cm, QR jika isi padu gabungan pepejal itu ialah 3656 cm^3.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

66 (a) Factorise $4p(4p + 2) - 8$.
Faktorkan $4p(4p + 2) - 8$.

(b) Solve the equation $q = \frac{5q^2 - 6}{7}$.

Selesaikan persamaan $q = \frac{5q^2 - 6}{7}$.

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

---

67 Diagram 26 shows a cube with a cylinder removed from it. The height of the cylinder is same with the height of the cube.
Rajah 26 menunjukkan sebuah kubus dengan sebuah silinder diambil daripadanya. Tinggi silinder adalah sama dengan tinggi kubus.

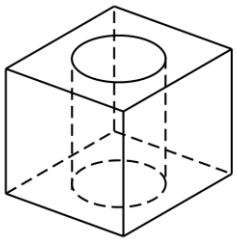

Diagram 26
Rajah 26

The the diameter of the cylinder is 7 cm and the height of the cylinder is 8 cm. Calculate the volume, in cm^3, of the remaining solid. Give answer correct to two decimal places.
Diameter silinder itu ialah 7 cm dan tinggi silinder itu ialah 8 cm. Hitung isi padu, dalam cm^3, bagi pepejal yang tinggal. Beri jawapan beutl kepada dua tempat perpuluhan.

[Use $\pi = \frac{22}{7}$]

[Guna $\pi = \frac{22}{7}$ *]*

[4 *marks*]
[4 *markah*]

Answer:
Jawapan:

SKEMA JAWAPAN BAHAGIAN 1

1 $x + 3y = -2$ ---------- (1)
(1) × 2
$2x + 6y = -4$ ---------- (2)
$2x - y = 3$ ---------- (3)
(2) – (3),
$7y = -7$
$y = -1$
$2x + 1 = 3$
$2x = 2$
$x = 1$

$\therefore x = 1, y = -1$

2 $s - 3t = 5$ ---------- (1)
$2s + 5t = 10$ ---------- (2)
(1) × 5
$5s - 15t = 25$ ---------- (3)
(2) × 3
$6s + 15t = 30$ ---------- (4)
(3) + (4)
$11s = 55$
$\therefore s = 5$

$\therefore 5 - 3t = 5$
$3t = 0$
$t = 0$

3 Let the two numbers be x and y.
Biarkan dua nombor itu adalah x dan y.
$x + y = 62$
$y = 62 - x$ ---------- (1)
$x - y = 6$ ---------- (2)
$x - (62 - x) = 6$
$x - 62 + x = 6$
$2x = 68$
$x = 34$
$y = 62 - 34$
$y = 28$
$\therefore x = 34, y = 28$

4 Volume of the box
Isipadu kotak
$= (5b - 4) \times (5b - 2 - 4) \times 2$
$= (5b - 4) \times (5b - 6) \times 2$
$= ((5b)(5b) + (5b)(-6) + (-4)(5b) + (-4)(-6)) \times 2$
$= (25b^2 - 30b - 20b + 24) \times 2$
$= 50b^2 - 100b + 48$

5 (a) $5m(5m + 8)$
$= (5m)(5m) + (5m)(8)$
$= 25m^2 + 40m$

(b) $(2n + 9)(2n - 3)$
$= (2n)(2n) + (2n)(-3) + 9(2n) + 9(-3)$
$= 4n^2 - 6n + 18n - 27$
$= 4n^2 + 12n - 27$

6 (a) Yes
Ya

(b) Yes
Ya

(c) Yes
Ya

(d) No
Bukan

7 $3p + \frac{1}{3}q = 16$ ---------- (1)
$4p - q = 4$ ---------- (2)
(1) × 3
$9p + q = 48$ ---------- (3)
(2) + (3)
$13p = 52$
$\therefore p = 4$

$4(4) - q = 4$
$\therefore q = 12$

8 $p - q = 9$
$p = 9 + q$ ---------- (1)
$9p - 10q = -8$ ---------- (2)
$9(9 + q) - 10q = -8$
$81 + 9q - 10q = -8$
$-q = -89$
$q = 89$
$p = 9 + 89$
$p = 98$
$\therefore p = 98, q = 89$

9 $2x + y = 1$ ---------- (1)
$x + y = 4$ ---------- (2)
From (2): $y = 1 - 2x$ ---------- (3)

Substitute (3) into (2):
$x + (1 - 2x) = 4$
$x - 2x + 1 = 4$
$-x = 3$
$x = -3$

$y = 1 - 2(-3)$
$y = 1 - (-6)$
$y = 7$

$\therefore x = -3, y = 7$

10 $m - n = 8$
$m = 8 + n$ ---------- (1)
$3m + 2n = 14$ ---------- (2)
$3(8 + n) + 2n = 14$
$24 + 3n + 2n = 14$
$5n = -10$
$n = -2$
$m = 8 + (-2)$
$m = 6$
$\therefore m = 6, n = -2$

11 (a) Length of arc WX
Panjang lengkok WX
$= \frac{60°}{360°} \times 2 \times \frac{22}{7} \times 14$
$= \frac{44}{3}$ cm
Perimeter
$= \frac{44}{3} + 14 \times 2$
$= 42\frac{2}{3}$ cm

(b) Area of sector OWX
Luas sektor OWX
$= \frac{60°}{360°} \times \frac{22}{7} \times 14^2$
$= \frac{308}{3}$ cm^2
Area of sector OYZ
Luas sektor OYZ
$= \frac{42°}{360°} \times \frac{22}{7} \times 7^2$
$= \frac{539}{30}$ cm^2
Area of the shaded region
Luas kawasan berlorek
$= \frac{308}{3} - \frac{539}{30}$
$= 84\frac{7}{10}$ cm^2

12 $2s - t = 3$ ---------- (1)
$s + 3t = -2$ ---------- (2)
(1) × 3: $6s - 3t = 9$ ---------- (3)
(2) + (3): $7s = 7$
$s = 1$

$1 + 3t = -2$
$3t = -3$
$t = -1$

$\therefore s = 1, t = -1$

13 $p + 5q = -3$ ---------- (1)
$\frac{1}{5}p - q = -3$ ---------- (2)
(2) × 5: $p - 5q = -15$ ---------- (3)
(1) + (3): $2p = -18$
$p = -9$

$-9 + 5q = -3$
$5q = 6$
$q = \frac{6}{5}$

$\therefore p = -9, q = \frac{6}{5}$

14 (a) Area of sector OPQ
Luas sektor OPQ
$= \frac{75°}{360°} \times \frac{22}{7} \times 25^2$
$= 409.23$ cm^2
Area of semicircle $RSTU$
Luas sektor RSTU

$= \frac{1}{2} \times \frac{22}{7} \times 3.5^2$
$= 19.25 \text{ cm}^2$
Area of the shaded region
Luas kawasan berlorek
$= 409.23 - 19.25$
$= 389.98 \text{ cm}^2$

(b) Length of arc *PQ*
Panjang lengkok PQ
$= \frac{75°}{360°} \times 2 \times \frac{22}{7} \times 25$
$= 32.74$ cm
Length of arc *32.74*
Panjang lengkok 32.74
$= \frac{1}{2} \times 2 \times \frac{22}{7} \times 3.5^2$
$= 11$ cm
Perimeter
$= 32.74 + 11 + 25 + (25 - (3.5 \times 2))$
$= 86.74$ cm

15 $16\frac{16}{21} = \frac{2}{3}(\frac{22}{7})(r)^3$

$r^3 = \frac{352}{21} \times \frac{21}{44}$
$= 8$

$r = \sqrt[3]{8}$
$= 2$
$k = 5 \times 2 \times 2$
$= 20$ cm

16 (a) $y(4 + y) = 3y^2 - 5$
$4y + y^2 = 3y^2 - 5$
$3y^2 - y^2 - 4y - 5 = 0$
$2y^2 - 4y - 5 = 0$

(b) $h^2 + (5h - 1)^2 = -1$
$h^2 + (5h - 1)(5h - 1) = -1$
$h^2 + 25h^2 - 5h - 5h + 1 + 1 = 0$
$26h^2 - 10h + 2 = 0$

17 $m - n = 5$ ---------- (1)
$3m - 4n = -2$ ---------- (2)
From (1): $m = 5 + n$ ---------- (3)

Substitute (3) into (2):
$3(5 + n) - 4n = -2$
$15 + 3n - 4n = -2$
$-n = -17$
$n = 17$

$m = 5 + (17)$
$m = 22$

$\therefore m = 22, n = 17$

18 $m - 4n = -2$ ---------- (1)
$\frac{3}{2}m - 4n = -1$ ---------- (2)
From (1): $m = -2 + 4n$ ---------- (3)

Substitute (3) into (2):
$\frac{3}{2}(-2 + 4n) - 4n = -1$

$-3 + 6n - 4n = -1$
$2n = 2$
$n = 1$

$m = -2 + 4(1)$
$m = -2 + 4$
$m = 2$

$\therefore n = 1, m = 2$

19 (a) $8p(p - 7) + 6(3p + 5)$
$= 8p^2 - 56p + 18p + 30$
$= 8p^2 - 38p + 30$
$= 2(4p^2 - 19p + 15)$
$= 2(4p - 15)(p - 1)$

(b) $19p^2 - 19q^2$
$= 19(p^2 - q^2)$
$= 19(p - q)(p + q)$

20 $x(4x + 1) = 6 + 6x$
$4x^2 + x = 6 + 6x$
$4x^2 - 5x - 6 = 0$
$(x - 2)(4x + 3) = 0$
$(x - 2) = 0$ or $(4x + 3) = 0$
$(x - 2) = 0$ atau $(4x + 3) = 0$
$x = 2$ or $x = -\frac{3}{4}$
$x = 2$ atau $x = -\frac{3}{4}$

21 (a) Area
Luas
$= OA + AB + BO$
$= 28 + (\frac{360 - 100}{360} \times 2 \times \frac{22}{7} \times 28) + 28$
$= 28 + 127.11 + 28$
$= 183.11$ cm

(b) Area of *OACB*
Luas OACB
$= \frac{360 - 100}{360} \times \frac{22}{7} \times 28^2$
$= 1779.56 \text{ cm}^2$
Area of *POQC*
Luas POQC
$= \frac{180}{360} \times \frac{22}{7} \times 14^2$
$= 308 \text{ cm}^2$
Area of shaded area
Luas kawasan berlorek
$= 1779.56 - 308$
$= 1471.56 \text{ cm}^2$

22 (a) $3(x^2 + 8) + 18x$
$= 3x^2 + 18x + 24$
$= 3(x^2 + 6x + 8)$
$= 3(x + 2)(x + 4)$

(b) $\frac{1}{6}y = \frac{y^2 - 7}{4}$
$4(y) = 6(y^2 - 7)$
$4y = 6y^2 - 42$
$6y^2 - 4y - 42 = 0$
$3y^2 - 2y - 21 = 0$
$(y - 3)(3y + 7) = 0$
$(y - 3) = 0$ or $(3y + 7) = 0$
$(y - 3) = 0$ atau $(3y + 7) = 0$
$y = 3$ or $y = -\frac{7}{3}$
$y = 3$ atau $y = -\frac{7}{3}$

23 (a) $(5x^2 - x) - (4x - 2x^2)$
$= 5x^2 - x - 4x + 2x^2$
$= 7x^2 - 5x$
$= x(7x - 5)$

(b) $9y - 4y^3$
$= y(9 - 4y^2)$
$= y(3 - 2y)(3 + 2y)$

24 (a) Length of arc *MN*
Panjang lengkok MN
$= \frac{1}{4} \times 2 \times \frac{22}{7} \times 56$
$= 88$ cm
Length of arc *OKM*
Panjang lengkok OKM
$= \frac{1}{2} \times 2 \times \frac{22}{7} \times 28$
$= 88$ cm
Perimeter of the shaded region
Perimeter kawasan yang berlorek
$= 88 + 88 + 56$
$= 232$ cm

(b) Area of the shaded region
Luas kawasan yang berlorek
$= \frac{1}{4} \times \frac{22}{7} \times 56^2 - \frac{1}{2} \times \frac{22}{7} \times 28^2$
$= 2464 - 1232$
$= 1232 \text{ cm}^2$

25 $x^2 - 8x - 1 = 2(x + 5)$
$x^2 - 8x - 1 = 2x + 10$
$x^2 - 10x - 11 = 0$
$(x - 11)(x + 1) = 0$
$(x - 11) = 0$ or $(x + 1) = 0$
$(x - 11) = 0$ atau $(x + 1) = 0$
$x = 11$ or $x = -1$
$x = 11$ atau $x = -1$

26 Volume of cylinder
Isipadu silinder
$= 7\,128 \text{ cm}^3$
Volume of hemisphere
Isipadu hemisfera
$= 56\frac{4}{7} \text{ cm}^3$
Volume of the solid
Isipadu pepejal

$= 7\,128 + 56\frac{4}{7}$

$= 7\,184\frac{4}{7}\ \text{cm}^3$

27 $2m - 3n - 26 = 0$ ---------- (1)
$5m + 7n + 51 = 0$ ---------- (2)
(1) × 7, $14m - 21n - 182 = 0$
$14m - 21n = 182$ ---------- (3)
(2) × 3, $15m + 21n + 153 = 0$
$15m + 21n = -153$ ---------- (4)
(3) + (4)
$14m + 15m = 182 + (-153)$
$29m = 29$
$m = 1$
$2(1) - 3n - 26 = 0$
$3n = 2 - 26$
$3n = -24$
$n = -8$
$\therefore m = 1, n = -8$

28 (a) Area of sector *OFG*
Luas sektor OFG
$= \frac{1}{4} \times \frac{22}{7} \times 21^2$
$= \frac{693}{2}\ \text{cm}^2$
Area of sector *OIJ*
Luas sektor OIJ
$= \frac{60°}{360°} \times \frac{22}{7} \times 7^2$
$= \frac{77}{3}\ \text{cm}^2$
Area of the shaded region
Luas kawasan berlorek
$= \frac{693}{2} - \frac{77}{3}$
$= 320\frac{5}{6}\ \text{cm}^2$

(b) Length of arc *FG*
Panjang lengkok FG
$= \frac{1}{4} \times 2 \times \frac{22}{7} \times 21$
$= 33$ cm
Length of arc *HI*
Panjang lengkok HI
$= \frac{(180° - 60°)}{360°} \times 2 \times \frac{22}{7} \times 7^2$
$= \frac{44}{3}$ cm
Perimeter
$= 33 + \frac{44}{3} + 21 + 7 + (21 - 7)$
$= 89\frac{2}{3}$ cm

29 Cross-section area *KLMN*
Luas keratan rentas KLMN
$= \frac{1}{2} \times (14 + 5) \times 10$
$= 95\ \text{cm}^2$
Volume of composite solid
Isi padu gabungan pepejal
$= 95 \times 20 + 10 \times 10 \times 10$
$= 1900 + 1000$
$= 2900\ \text{cm}^3$

30 Volume of the solid
Isi padu pepejal
$= [\frac{22}{7} \times (\frac{7}{2})^2 \times 10] + [\frac{1}{2} \times (23 + 27) \times 18 \times 5$
$= 385 + 2250$
$= 2635\ \text{cm}^3$

31 (a) $4p^2 = 10p$
$4p^2 - 10p = 0$
$2p(2p - 5) = 0$
$2p = 0$ or $(2p - 5) = 0$
$2p = 0$ atau $(2p - 5) = 0$
$p = 0$ or $p = \frac{5}{2}$
$p = 0$ atau $p = \frac{5}{2}$

(b) $5q(3q + 1) - q = 3$
$15q^2 + 5q - q = 3$
$15q^2 + 4q - 3 = 0$
$(3q - 1)(5q + 3) = 0$
$(3q - 1) = 0$ or $(5q + 3) = 0$
$(3q - 1) = 0$ atau $(5q + 3) = 0$
$q = \frac{1}{3}$ or $q = -\frac{3}{5}$
$q = \frac{1}{3}$ atau $q = -\frac{3}{5}$

32 (a) $6m(m - 3) + 19m$
$= 6m^2 - 18m + 19m$
$= 6m^2 + m$
$= m(6m + 1)$

(b) $(n - 1)(2n - 10) - 24 = 0$
$2n^2 - 10n - 2n + 10 - 24 = 0$
$2n^2 - 12n - 14 = 0$
$m^2 - 6m - 7 = 0$
$(m - 7)(m + 1) = 0$
$(m - 7) = 0$ or $(m + 1) = 0$
$(m - 7) = 0$ atau $(m + 1) = 0$
$m = 7$ or $m = -1$
$m = 7$ atau $m = -1$

33 (a) Volume of the half circular cylinder
Isipadu separuh silinder
$= \frac{1}{2} \times \frac{22}{7} \times (\frac{14}{2})^2 \times 8$
$= 616\ \text{cm}^3$

(b) Total volume
Jumlah isi padu
$= 952\ \text{cm}^3$
$\frac{1}{2} \times 14 \times OD \times 8 = 952 - 616$
$56 \times OD = 336$
$OD = 6$ cm

34 $4(2p + 5q) = 4$
$8p + 20q = 4$ ---------- (1)
$\frac{5p}{5} - 4q = 7$
$5p - 20q = 35$ ---------- (2)
(1) + (2),
$8p + 5p = 4 + 35$
$13p = 39$
$p = 3$
$8(3) + 20q = 4$
$20q = -20$
$q = -1$

$\therefore \frac{p}{q} = \frac{3}{-1} = -3$

35 Volume of the combined solid
Isi padu gabungan pepejal
$= \frac{2}{3}\pi r^3 + \frac{1}{3}\pi r^2 h$
$= \frac{2}{3} \times \frac{22}{7} \times 6^3 + \frac{1}{3} \times \frac{22}{7} \times 6^2 \times 15$
$= 452.57 + 565.71$
$= 1018.29\ \text{cm}^3$

36 Volume of cylinder
Isipadu silinder
$= 3\,080\ \text{cm}^3$
Volume of hemisphere
Isipadu hemisfera
$= 134\frac{2}{21}\ \text{cm}^3$
Volume of remaining solid
Isipadu pepejal yang tinggal
$= 3\,080 - 134\frac{2}{21}$
$= 2\,945\frac{19}{21}\ \text{cm}^3$

37 (a) Length of arc *QR*
Panjang lengkok QR
$= \frac{1}{4} \times 2 \times \frac{22}{7} \times 14$
$= 22$ cm
Circumference of circle
Lilitan bulatan
$= 2 \times \frac{22}{7} \times 49$
$= 308$ cm
Perimeter of the shaded region

Perimeter kawasan yang berlorek

$= 308 + 14 + 14 + 22$

$= 358$ cm

(b) Area of the shaded region
Luas kawasan yang berlorek

$= \frac{22}{7} \times 49^2 - \frac{1}{4} \times \frac{22}{7} \times 14^2$

$= 7546 - 154$

$= 7392$ cm^2

38 Volume of the remaining solid
Isi padu pepejal yang tinggal
$= (\frac{1}{3} \times \frac{22}{7} \times 12^2 \times 35) - (\frac{22}{7} \times 3^2 \times 14)$
$= 5280 - 396$
$= 4884$ cm^3

39 $\frac{x(x-5)}{6} = x - 5$
$x(x-5) = 6x - 30$
$x^2 - 5x = 6x - 30$
$x^2 - 11x + 30 = 0$
$(x-6)(x-5) = 0$
$(x-6) = 0$ or $(x-5) = 0$
$(x-6) = 0$ atau $(x-5) = 0$
$x = 6$ or $x = 5$
$x = 6$ atau $x = 5$

40 Volume of the remaining solid
Isi padu bagi pepejal yang tinggal
$= (\frac{2}{3} \times \frac{22}{7} \times 6^3) - (\frac{1}{3} \times \frac{22}{7} \times 3^2 \times 4.2)$
$= 452.57 - 39.6$
$= 412.97$ cm^3

41 (a) $4m(4m-5) + 4 = 0$
$16m^2 - 20m + 4 = 0$
$4m^2 - 5m + 1 = 0$
$(m-1)(4m-1) = 0$
$(m-1) = 0$ or $(4m-1) = 0$
$(m-1) = 0$ atau $(4m-1) = 0$
$m = 1$ or $m = \frac{1}{4}$
$m = 1$ atau $m = \frac{1}{4}$

(b) $(n+7)^2 = 25n^2$
$(n+7)(n+7) = 25n^2$
$n^2 + 14n + 49 = 25n^2$
$24n^2 - 14n - 49 = 0$
$(4n-7)(6n+7) = 0$
$(4n-7) = 0$ or $(6n+7) = 0$
$(4n-7) = 0$ atau $(6n+7) = 0$
$n = \frac{7}{4}$ or $n = -\frac{7}{6}$
$n = \frac{7}{4}$ atau $n = -\frac{7}{6}$

42 $\frac{2}{3}\pi r^3 + \frac{1}{3}\pi r^2 n = 1\,694$
$\pi r^2(\frac{2}{3}r + \frac{1}{3}n) = 1\,694$
$\frac{2}{3}r + \frac{1}{3}n = \frac{1\,694}{\pi r^2}$
$\frac{1}{3}n = \frac{1\,694}{\pi r^2} - \frac{2}{3}r$
$n = (\frac{1\,694}{\pi r^2} - \frac{2}{3}r) \times 3$
$= (\frac{1\,694}{7^2} \times \frac{7}{22} - \frac{2}{3} \times 7) \times 3$
$= (11 - \frac{14}{3}) \times 3$
$= \frac{19}{3} \times 3$
$= 19$ cm

43 (a) $4p^2 + \frac{p}{2} = 0$
$8p^2 + p = 0$
$p(8p+1) = 0$
$p = 0$ or $(8p+1) = 0$
$p = 0$ atau $(8p+1) = 0$
$p = 0$ or $p = -\frac{1}{8}$
$p = 0$ atau $p = -\frac{1}{8}$

(b) $\frac{4q}{5} = \frac{10-7q}{q}$
$q(4q) = 5(10-7q)$
$4q^2 = 50 - 35q$
$4q^2 + 35q - 50 = 0$
$(4q-5)(q+10) = 0$
$(4q-5) = 0$ or $(q+10) = 0$
$(4q-5) = 0$ atau $(q+10) = 0$
$q = \frac{5}{4}$ or $q = -10$
$q = \frac{5}{4}$ atau $q = -10$

44 $x - 4 = \frac{7-4x}{4x}$
$(x-4)4x = 7 - 4x$
$4x^2 - 16x = 7 - 4x$
$4x^2 - 12x - 7 = 0$
$(2x-7)(2x+1) = 0$
$(2x-7) = 0$ or $(2x+1) = 0$
$(2x-7) = 0$ atau $(2x+1) = 0$
$x = \frac{7}{2}$ or $x = -\frac{1}{2}$
$x = \frac{7}{2}$ atau $x = -\frac{1}{2}$

45 (a) $UOV = 360° - 90° - 120°$
$= 150°$

Perimeter
$= OS + ST + TU + UV + VO$
$= 14 + (\frac{90}{360} \times 2 \times \frac{22}{7} \times 35) + (35 - 14) + (\frac{150}{360} \times 2 \times \frac{22}{7} \times 35) + 35$
$= 14 + 22 + 21 + 91.67 + 35$
$= 183.67$ cm

(b) Area
Luas
$= (\frac{90}{360} \times \frac{22}{7} \times 14^2) + (\frac{150}{360} \times 2 \times \frac{22}{7} \times 35^2)$
$= 1758.17$ cm^2

46 $4m + n = -10$ ---------- (1)
$5m - 6n = 2$ ---------- (2)
From (2): $n = -10 - 4m$ ---------- (3)

Substitute (3) into (2):
$5m - 6(-10 - 4m) = 2$
$5m + 24m + 60 = 2$
$29m = -58$
$m = -2$

$n = -10 - 4(-2)$
$n = -10 - (-8)$
$n = -2$

$\therefore m = -2, n = -2$

47 Volume
Isi padu
$= \frac{22}{7} \times 13^2 \times 7 + \frac{1}{3} \times \frac{22}{7} \times 6^2 \times 14$
$= \frac{22}{7} \times 169 \times 7 + \frac{1}{3} \times \frac{22}{7} \times 36 \times 14$
$= 3\,718 + 528$
$= 4\,246$ cm^3

48 $2x^2 - x = 2(3 + 5x)$
$2x^2 - x = 6 + 10x$
$2x^2 - 11x - 6 = 0$
$(x-6)(2x+1) = 0$
$(x-6) = 0$ or $(2x+1) = 0$
$(x-6) = 0$ atau $(2x+1) = 0$
$x = 6$ or $x = -\frac{1}{2}$
$x = 6$ atau $x = -\frac{1}{2}$

49 $10x^2 - 12 = -19x$
$10x^2 + 19x - 12 = 0$
$(2x-1)(5x+12) = 0$
$(2x-1) = 0$ or $(5x+12) = 0$

$(2x - 1) = 0$ *atau* $(5x + 12) = 0$

$x = \frac{1}{2}$ or $x = -\frac{12}{5}$

$x = \frac{1}{2}$ *atau* $x = -\frac{12}{5}$

50 $x(17x + 15) = 38$

$17x^2 + 15x = 38$

$17x^2 + 15x - 38 = 0$

$(17x - 19)(x + 2) = 0$

$(17x - 19) = 0$ or $(x + 2) = 0$

$(17x - 19) = 0$ *atau* $(x + 2) = 0$

$x = \frac{19}{17}$ or $x = -2$

$x = \frac{19}{17}$ *atau* $x = -2$

51 Volume of the cylinder
Isipadu silinder
$= 1029\pi$ cm^3
Volume of the cone
Isipadu kon
$= 42\pi$ cm^3
Volume of the remaining solid
Isipadu pepejal yang tinggal
$= 1029\pi - 42\pi$

$= 987 \times \frac{22}{7}$

$= 3102$ cm^3

52 $13 \times 18 \times 5 + \frac{1}{3} \times 13 \times 18 \times h =$ 2 184

$1\,170 + 78h = 2\,184$

$h = (2\,184 - 1\,170) \times \frac{1}{78}$

$= 1\,014 \times \frac{1}{78}$

$= 13$ cm

53 $3x^2 = 6(4x - 7) - 6$

$3x^2 = 24x - 42 - 6$

$3x^2 - 24x + 48 = 0$

$x^2 - 8x + 16 = 0$

$(x - 4)(x - 4) = 0$

$(x - 4) = 0$ or $(x - 4) = 0$

$(x - 4) = 0$ *atau* $(x - 4) = 0$

$x = 4$

$x = 4$

54 $\frac{5x^2 + x}{4x - 1} = 2$

$5x^2 + x = 8x - 2$

$5x^2 - 7x + 2 = 0$

$(x - 1)(5x - 2) = 0$

$(x - 1) = 0$ or $(5x - 2) = 0$

$(x - 1) = 0$ *atau* $(5x - 2) = 0$

$x = 1$ or $x = \frac{2}{5}$

$x = 1$ *atau* $x = \frac{2}{5}$

55 (a) $3m^2 - 7m + 4$
$= (3m - 4)(m - 1)$

(b) $\frac{2n^2 + 3}{7n} = \frac{5}{6}$

$6(2n^2 + 3) = 7n(5)$

$12n^2 + 18 = 35n$

$12n^2 - 35n + 18 = 0$

$(4n - 9)(3n - 2) = 0$

$(4n - 9) = 0$ or $(3n - 2) = 0$

$(4n - 9) = 0$ *atau* $(3n - 2) = 0$

$n = \frac{9}{4}$ or $n = \frac{2}{3}$

$n = \frac{9}{4}$ *atau* $n = \frac{2}{3}$

56 Volume
Isi padu
$= 28 \times 14 \times 8 + \frac{1}{2} \times \frac{22}{7} \times 14^2 \times 14$
$= 3\,136 + 4\,312$
$= 7\,448$ cm^3

57 (a) Length of arc *PQ*
Panjang lengkok PQ
$= \frac{70°}{360°} \times 2 \times \frac{22}{7} \times 14$
$= \frac{154}{9}$ cm
Length of arc *RST*
Panjang lengkok RST
$= \frac{110°}{360°} \times 2 \times \frac{22}{7} \times 28$
$= \frac{484}{9}$ cm
Perimeter
$= \frac{154}{9} + \frac{484}{9} + 14 + 28$
$= 112\frac{8}{9}$ cm

(b) Area of sector *POQ*
Luas sektor POQ
$= \frac{70°}{360°} \times \frac{22}{7} \times 14^2$
$= \frac{1078}{9}$ cm^2
Area of sector *ORST*
Luas sektor ORST
$= \frac{110°}{360°} \times \frac{22}{7} \times 28^2$
$= \frac{6776}{9}$ cm^2
Area of semicircle *OUT*
Luas semibulatan OUT
$= \frac{1}{2} \times \frac{22}{7} \times 14^2$
$= 308$ cm^2
Area of the shaded region
Luas kawasan berlorek
$= \frac{1078}{9} + \frac{6776}{9} - 308$
$= 564\frac{2}{3}$ cm^2

58 (a) Length of arc *MN*
Panjang lengkok MN
$= \frac{30°}{360°} \times 2 \times \frac{22}{7} \times 7$
$= \frac{11}{3}$ cm
Length of arc *PQ*
Panjang lengkok PQ
$= \frac{60°}{360°} \times 2 \times \frac{22}{7} \times 14$
$= \frac{44}{3}$ cm
Perimeter
$= \frac{11}{3} + \frac{44}{3} + 7 \times 4$
$= 46\frac{1}{3}$ cm

(b) Area of sector *OMN*
Luas sektor OMN
$= \frac{30°}{360°} \times \frac{22}{7} \times 7^2$
$= \frac{77}{6}$ cm^2
Area of sector *OPQ*
Luas sektor OPQ
$= \frac{60°}{360°} \times \frac{22}{7} \times 14^2$
$= \frac{308}{3}$ cm^2
Area of sector *ONR*
Luas semibulatan ONR
$= \frac{30°}{360°} \times \frac{22}{7} \times 7^2$
$= \frac{77}{3}$ cm^2
Area of the shaded region
Luas kawasan berlorek
$= \frac{77}{6} + \frac{308}{3} - \frac{77}{3}$
$= 89\frac{5}{6}$ cm^2

59 (a) $20p^2 - p - 21$
$= (20p - 21)(p + 1)$

(b) $10q^3 - 10q$
$= 10q(q^2 - 1)$
$= 10q(q - 1)(q + 1)$

60 $(2x + 5)^2 = x + 10$

$4x^2 + 10x + 10x + 25 = x + 10$

$4x^2 + 20x + 25 = x + 10$

$4x^2 + 19x + 15 = 0$

$(x + 1)(4x + 15) = 0$

$(x + 1) = 0$ or $(4x + 15) = 0$

$(x + 1) = 0$ *atau* $(4x + 15) = 0$

$x = -1$ or $x = -\frac{15}{4}$

$x = -1$ *atau* $x = -\frac{15}{4}$

61 $5s - t = 3$

$t = 5s - 3$ ---------- (1)

$3s - 2t = -1$ ---------- (2)

$3s - 2(5s - 3) = -1$

$3s - 10s + 6 = -1$
$-7s = -7$
$s = 1$
$5(1) - t = 3$
$t = 2$
$\therefore s = 1, t = 2$

$s - t$
$= 1 - 2$
$= -1$

62 (a) $21 + 98x^2$
$= 7(3 + 14x^2)$

(b) $2(2y + 3)^2 + 9(2y + 3) - 11$
$= 2(2y + 3)(2y + 3) + 9(2y + 3) - 11$
$= 2(4y^2 + 12y + 9) + 18y + 27 - 11$
$= 8y^2 + 24y + 18 + 18y + 27 - 11$
$= 8y^2 + 42y + 34$
$= 2(4y^2 + 21y + 17)$
$= 2(y + 1)(4y + 17)$

63 (a) $6s^2 - 39s$
$= 3s(2s - 13)$

(b) $8t^2 + t - 30$
$= (8t - 15)(t + 2)$

Anak Masih Lemah, Tak Minat & Tak Fokus Dalam Matematik?

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