INTENSIF ASAS

TINGKATAN 4

MATEMATIK

TOPIK
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Professional Maths Centre™
MATHS CATCH

Dwibahasa

LEBIH DARI **108 SOALAN** TERPILIH BERTARAF PEPERIKSAAN DAN BERKUALITI TINGGI DAN SANGAT SESUAI UNTUK KEGUNAAN PELAJAR SEBAGAI LATIHAN ASAS DIRUMAH

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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STANDARD FORM

BAHAGIAN 1

1 Round off 0.3184 correct to one significant figure.
Bundarkan 0.3184 *betul kepada satu angka bererti.*

Answer:
Jawapan:

2 Calculate the value of 702.9 − 4.779 + 867.5 and round off your answer correct to six significant figures.
Hitung nilai 702.9 − 4.779 + 867.5 *dan bundarkan jawapan anda betul kepada enam angka bererti.*

Answer:
Jawapan:

3 Calculate the value of 71.78 + 662 − 0.0835 and round off your answer correct to five significant figures.
Hitung nilai 71.78 + 662 − 0.0835 *dan bundarkan jawapan anda betul kepada lima angka bererti.*

Answer:
Jawapan:

4 Calculate the value of 85.7 − 59.69 − 0.5185 and round off your answer correct to three significant figures.
Hitung nilai 85.7 − 59.69 − 0.5185 *dan bundarkan jawapan anda betul kepada tiga angka bererti.*

Answer:
Jawapan:

5 Convert 7.447×10^3 to a single number.
Tukar 7.447×10^3 *kepada satu nombor tunggal.*

Answer:
Jawapan:

6 State 55.091 in standard form.
Nyatakan 55.091 *dalam bentuk piawai.*

Answer:
Jawapan:

7 Calculate the value of 874.3 + 9.884 + 8.002 and round off your answer correct to one significant figure.
Hitung nilai 874.3 + 9.884 + 8.002 *dan bundarkan jawapan anda betul kepada satu angka bererti.*

Answer:
Jawapan:

8 State 40.501×10^{11} in standard form.
Nyatakan 40.501×10^{11} *dalam bentuk piawai.*

Answer:
Jawapan:

9 Calculate the value of $54.4 \times 43.7 \times 0.78$ and round off your answer correct to one significant figure.
Hitung nilai $54.4 \times 43.7 \times 0.78$ *dan bundarkan jawapan anda betul kepada satu angka bererti.*

Answer:
Jawapan:

10 Calculate the value of $1.176 \times 6.797 \div 0.00294$ and round off your answer correct to two significant figures.
Hitung nilai $1.176 \times 6.797 \div 0.00294$ *dan bundarkan jawapan anda betul kepada dua angka bererti.*

Answer:
Jawapan:

11 Calculate the value of $7.99 \times 10^{-15} - 7.9 \times 10^{-16}$ and express its answer in standard form.
Hitung nilai $7.99 \times 10^{-15} - 7.9 \times 10^{-16}$ *dan nyatakan jawapan dalam bentuk piawai.*

Answer:
Jawapan:

12 Calculate the value of $(7.4 \times 10^{-13}) \times (8.6 \times 10^{-11})$ and express its answer in standard form.
Hitung nilai $(7.4 \times 10^{-13}) \times (8.6 \times 10^{-11})$ *dan nyatakan jawapan dalam bentuk piawai.*

Answer:
Jawapan:

13 Calculate the value of $150.1 \div 475 \div 987.5$ and round off your answer correct to one significant figure.
Hitung nilai $150.1 \div 475 \div 987.5$ *dan bundarkan jawapan anda betul kepada satu angka bererti.*

Answer:
Jawapan:

14 Calculate the value of $0.8828 \div 0.061 \times 585.6$ and round off your answer correct to five significant figures.
Hitung nilai $0.8828 \div 0.061 \times 585.6$ *dan bundarkan jawapan anda betul kepada lima angka bererti.*

Answer:
Jawapan:

15 Calculate the value of $9.68 \times 10^{-13} + 4.7 \times 10^{-14}$ and express its answer in standard form.
Hitung nilai $9.68 \times 10^{-13} + 4.7 \times 10^{-14}$ *dan nyatakan jawapan dalam bentuk piawai.*

Answer:
Jawapan:

16 Calculate the value of $\frac{6.12 \times 10^{-3}}{1.8 \times 10^{-9}}$ and express its answer in standard form.
Hitung nilai $\frac{6.12 \times 10^{-3}}{1.8 \times 10^{-9}}$ *dan nyatakan jawapan dalam bentuk piawai.*

Answer:
Jawapan:

BAHAGIAN 2

1 Round off 0.0046156 correct to three significant figures.
Bundarkan 0.0046156 *betul kepada tiga angka bererti.*

A 0.000462 **C** 0.00462
B 0.00461 **D** 0.004620

2 Round off 4.3488 correct to one significant figure.
Bundarkan 4.3488 *betul kepada satu angka bererti.*

A 5.0 **C** 4.0
B 5 **D** 4

3 Round off 8.235 correct to three significant figures.
Bundarkan 8.235 *betul kepada tiga angka bererti.*

A 8.23 **C** 8.24
B 8.230 **D** 8.240

4 Round off 94 438 correct to four significant figures.
Bundarkan 94 438 *betul kepada empat angka bererti.*

A 94 440 **C** 9 444
B 94 430 **D** 9 443

5 Round off 0.8763 correct to one significant figure.
Bundarkan 0.8763 *betul kepada satu angka bererti.*

A 0.8 **C** 0.9
B 0.80 **D** 0.90

6 Round off 0.01557 correct to three significant figures.
Bundarkan 0.01557 *betul kepada tiga angka bererti.*

A 0.0155 **C** 0.016
B 0.0156 **D** 0.02

7 The value of 96.67 – 3.291 – 85.3952 correct to three significant figures is
Nilai bagi 96.67 – 3.291 – 85.3952 *betul kepada tiga angka bererti ialah*

A 7.99 **C** 7.983
B 7.984 **D** 7.98

8 The value of 6.77 ÷ 59.9 × 8.69 correct to four significant figures is
Nilai bagi 6.77 ÷ 59.9 × 8.69 *betul kepada empat angka bererti ialah*

A 0.9821 **C** 0.98216
B 0.98215 **D** 0.9822

9 The value of 89.31 ÷ 86.32 ÷ 29.63 correct to three significant figures is
Nilai bagi 89.31 ÷ 86.32 ÷ 29.63 *betul kepada tiga angka bererti ialah*

A 0.0349 **C** 0.03492
B 0.03491 **D** 0.0350

10 The value of 9.917 + 0.0299 + 0.1251 correct to two significant figures is
Nilai bagi 9.917 + 0.0299 + 0.1251 *betul kepada dua angka bererti ialah*

A 11 **C** 10.0
B 10.1 **D** 10

11 Which number is rounded off correctly to two significant figures?
Nombor yang manakah dibundarkan betul kepada dua angka bererti?

	Number ***Nombor***	**Rounded off correctly to two significant figures** ***Dibundarkan betul kepada dua angka bererti***
A	3 415	3 400
B	8 672	8 670
C	0.0401	0.0401
D	0.0169	0.01690

12 The value of 2.03 × 5.45 × 0.2 correct to two significant figures is
Nilai bagi 2.03 × 5.45 × 0.2 *betul kepada dua angka bererti ialah*

A 2.3 **C** 2.21
B 2.22 **D** 2.2

13 All the following numbers have four significant figures **except**
Semua nombor berikut mempunyai empat angka bererti ***kecuali***

A 0.02750 **C** 80.000
B 0.05982 **D** 1.663

14 Hamdan has a piece of rectangular land with measurements of length 53.56 m and width 54.85 m. Find the area, in m^3, of the land correct to four significant figures.
Hamdan mempunyai sekeping tanah bersegi empat tepat dengan panjangnya 53.56 m *dan lebarnya* 54.85 m. *Cari luas, dalam* m^3, *tanah itu betul kepada empat angka bererti.*

A 2 937.8 **C** 216.8
B 2 938 **D** 216.82

15 The value of $81.17 \times 1.25 \div 9.91$ correct to two significant figures is
Nilai bagi $81.17 \times 1.25 \div 9.91$ *betul kepada dua angka bererti ialah*

A 10 **C** 10.3
B 10.2 **D** 11

16 Find the value of $(10 - 0.312) \div 20$ and round off the answer correct to two significant figures.
Cari nilai $(10 - 0.312) \div 20$ *dan bundarkan jawapan itu betul kepada dua angka bererti.*

A 0.5 **C** 0.484
B 0.49 **D** 0.48

17 The value of $9.15 + 3.9944 - 6.27$ correct to four significant figures is
Nilai bagi $9.15 + 3.9944 - 6.27$ *betul kepada empat angka bererti ialah*

A 6.875 **C** 6.8744
B 6.8745 **D** 6.874

18 The value of $9.59 - 4.2867 + 3.266$ correct to three significant figures is
Nilai bagi $9.59 - 4.2867 + 3.266$ *betul kepada tiga angka bererti ialah*

A 8.570 **C** 8.569
B 8.57 **D** 8.56

19 $\dfrac{0.008}{4\,000\,000} =$

A 2×10^{-10} **C** 2×10^{10}
B 2×10^{-9} **D** 2×10^{9}

20 $10.8 \times 10^4 =$

A 0.000108 **C** 108 000
B 0.00108 **D** 1 080 000

21 It is given that the height of a stack of paper is 420 mm and the thickness of a sheet of paper is approximately 8×10^{-3} mm. Estimate the number of sheets of papers in the stack.
Diberi bahawa ketinggian satu himpunan kertas ialah 420 mm *dan ketebalan sehelai kertas ini dianggarkan* 8×10^{-3} mm. *Anggarkan bilangan helaian kertas dalam himpunan itu.*

A 5.25×10^2 **C** 5.25×10^4
B 5.25×10^3 **D** 5.25×10^5

22 A factory melted 10 solid metal cylinders each with a radius of 20 cm and a height of 700 cm to make 20 identical solid spheres. Find the volume, in cm^3, of each solid sphere.
Sebuah kilang meleburkan 10 buah pepejal logam berbentuk silinder, dengan setiap satu berjejari 20 cm dan tinggi 700 cm untuk membentuk 20 buah pepejal sfera yang serupa.
Cari isi padu, dalam cm^3, *setiap pepejal sfera itu.*

A 7.00×10^3 **C** 2.20×10^4
B 4.40×10^5 **D** 1.40×10^5

23 Express 956 000 in standard form.
Nyatakan 956 000 *dalam bentuk piawai.*

A 9.56×10^6 **C** 9.56×10^{-6}
B 9.56×10^5 **D** 9.56×10^{-5}

24 Express 93 824.4 in standard form.
Nyatakan 93 824.4 *dalam bentuk piawai.*

A 93.8244×10^5 **C** 9.38244×10^4
B 93.8244×10^{-5} **D** 9.38244×10^{-4}

25 Express 9.181×10^{-5} as a single number.
Nyatakan 9.181×10^{-5} *sebagai satu nombor tunggal.*

A 0.009181 **C** 0.00009181
B 0.0009181 **D** 0.000009181

26 Express 0.00000487 in standard form.
Nyatakan 0.00000487 *dalam bentuk piawai.*

A 4.87×10^{-6} **C** 48.7×10^{-7}
B 4.87×10^6 **D** 48.7×10^7

27 $\dfrac{7.1 \times 10}{10} =$

A 7.1×10^1 **C** 7.1×10^{-1}
B 7.1×10^0 **D** 7.1×10^{-2}

28 Nagapan has 235 kg of sugar. She uses 20% of the sugar to bake cakes. The remainder of the sugar is divided equally into 2 bags. Find the mass, in g, of sugar in each bag.
Nagapan mempunyai 235 kg *gula. Dia menggunakan* 20% *daripada gula itu untuk membuat kek. Baki gula dibahagikan sama banyak ke dalam* 2 *beg.*
Cari jisim, dalam g, *gula dalam setiap beg itu.*

A 9.4×10^4 **C** 2.4×10^4
B 9.4×10^3 **D** 2.4×10^3

29 $4.04 \times 10^{-15} - 3.8 \times 10^{-17} =$

A 4.002×10^{-14} **C** 4.078×10^{-14}
B 4.002×10^{-15} **D** 4.078×10^{-15}

30 Diagram 1 is a cubic metal block with the side length of 10 m and density of 5 532 kg m^{-3}.
Rajah 1 ialah sebuah blok logam yang berbentuk kubus dengan panjang sisi 10 m *dan ketumpatan* 5 532 kg m^{-3}.

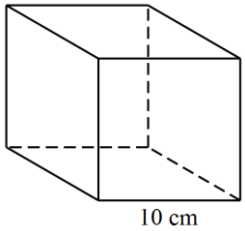

Diagram 1
Rajah 1

The metal block is melted and makes into small cubes. Each small cube weighs 0.6 g. Find the number of small cubes produced.
Blok logam itu dileburkan dan dibuat kubus kecil. Setiap kubus kecil berjisim 0.6 g.
Cari bilangan kubus kecil yang dihasilkan.

A 9.220×10^6 **C** 9.220×10
B 9.220×10^4 **D** 9.22×10^9

31 $\dfrac{0.013}{(5 \times 10^3)^2} =$

A 5.2×10^{-10} **C** 5.2×10^{-8}
B 2.6×10^{-10} **D** 2.6×10^{-8}

32 $\dfrac{3.96 \times 10^{-3}}{(6 \times 10^{-8})^2} =$

A 6.6×10^{12} **C** 1.1×10^{12}
B 6.6×10^{-19} **D** 1.1×10^{-19}

33 $\dfrac{8\ 900\ 000}{0.004} =$

A 2.225×10^9 **C** 2.225×10^{-9}
B 2.225×10^{10} **D** 2.225×10^{-10}

34 Diagram 2 is a rectangular empty tank with length 600 cm, width 1 000 cm and height 900 cm.
Rajah 2 ialah sebuah tangki kosong bersegi empat tepat dengan panjang 600 cm, *lebar* 1 000 cm, *dan tinggi* 900 cm.

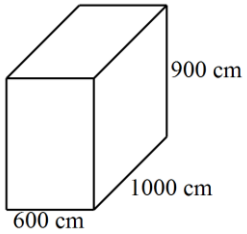

Diagram 2
Rajah 2

If 75% of tank is filled up with water, calculate the volume, in m^3, of water in the tank.
Jika 75% *daripada tangki itu diisi dengan air, hitung isipadu air, dalam* m^3, *dalam tangki itu.*

A 4.05×10^3 **C** 1.35×10^3
B 4.05×10^2 **D** 1.35×10^2

35 $8.5 \times 10^8 \div 0.00068 =$

A 1.25×10^{12} **C** 5.78×10^{13}
B 1.25×10^4 **D** 5.78×10^5

36 $9.8 \times 10^{14} + 3.6 \times 10^{16} =$

A 3.798×10^{17} **C** 3.698×10^{17}
B 3.798×10^{16} **D** 3.698×10^{16}

37 Given that $0.0000000052 = p \times 10^q$, where $p \times 10^q$ is a number in standard form.
What is the value of p and q?
Diberi bahawa $0.0000000052 = p \times 10^q$, *dengan keadaan* $p \times 10^q$ *adalah nombor dalam bentuk piawai.*
Apakah nilai p dan nilai q?

A $p = 5.2$, $q = -9$
B $p = 52$, $q = 10$
C $p = 5.2$, $q = 9$
D $p = 52$, $q = -10$

38 A rectangular floor of a school hall has a length of 44 m and a width of 24 m. Square tiles with length 40 cm is used to cover the floor. Calculate the number of tiles required to cover the floor completely.
Suatu lantai dewan sekolah yang bersegi empat tepat mempunyai panjang 44 m *dan lebar* 24 m. *Jubin bersegi empat sama dengan panjang* 40 cm *digunakan untuk menutup lantai itu. Hitung bilangan keping jubin yang perlu digunakan untuk menutup seluruh lantai sama sekali.*

A 6.6×10^5 **C** 2.64×10^7
B 6.6×10^3 **D** 2.64×10^5

39 $0.0096 - 5 \times 10^{-3} =$

A 9.1×10^{-4} **C** 4.6×10^{-4}
B 9.1×10^{-3} **D** 4.6×10^{-3}

40 $0.0000067 - 4.5 \times 10^{-8} =$

A 2.2×10^{-6} **C** 6.655×10^{-6}
B 2.2×10^{-8} **D** 6.655×10^{-8}

41 The total population of a country *M* in the year 2011 is 14.86 million. It is given that the number of people who are 60 years old and above is 2.0% of the total population. Calculate the number of people who are below 60 years old.
[1 million = 10^6]
Jumlah populasi sebuah negara M dalam tahun 2011 *ialah* 14.86 *juta. Diberi bahawa bilangan orang yang berumur* 60 *tahun dan ke atas adalah* 2.0% *daripada jumlah populasi. Hitung bilangan orang yang berumur di bawah* 60 *tahun.*
[1 juta = 10^6*]*

A 2.97×10^7 **C** 1.46×10^7
B 2.97×10^5 **D** 1.46×10^5

42 $(3.2 \times 10^2) \times (2.8 \times 10^{-3}) =$

A 8.96×10^{-1} **C** 9.06×10^{-1}
B 8.96×10^{-2} **D** 9.06×10^{-2}

43 $\dfrac{0.034}{2.0 \times 10^6} =$

A 1.7×10^{-10} **C** 1.7×10^{-8}
B 1.7×10^{-9} **D** 1.7×10^{-6}

44 $\dfrac{7.8 \times 10^1}{0.624} =$

A 1.25×10^1 **C** 1.25×10^3
B 1.25×10^2 **D** 1.25×10^4

45 Diagram 3 is a shape of a trapezium.
Rajah 3 ialah sebuah bentuk trapezium.

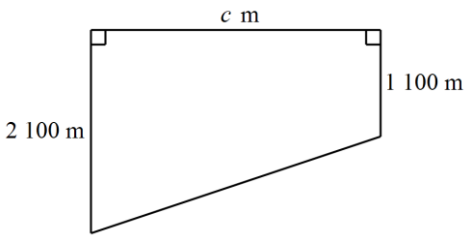

Diagram 3
Rajah 3

If the area of the trapezium is 19.04 km^3, the value of *c* is
Jika luas trapezium ialah 19.04 km^3*, nilai bagi c ialah*

A 5.95×10^2 **C** 1.19×10^4
B 5.95×10 **D** 1.19×10^3

QUADRATIC EXPRESSION & EQUATION

BAHAGIAN 1

1 Form a quadratic expression by multiplying each of the following.
Bentukkan suatu persamaan kuadratik dengan mendarab setiap yang berikut.
(a) $2m(4m - 10)$
(b) $(3n - 1)(4n + 9)$

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

2 Diagram 1 is an open rectangle paper box with length $3q$ cm and width $(2q - 2)$ cm. Four squares with sides of length 3 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 $3q$ cm *dan lebar* $(2q - 2)$ cm. *Empat buah segi empat sama dengan panjang sisinya* 3 cm *telah dipotong keluar di setiap penjuru dan kemudiannya kertas itu dilipat di atas garis bertitik.*

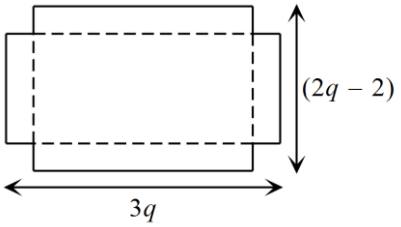

Diagram 1
Rajah 1

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

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

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

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

4 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) $7 + 6h = 5h^3$
(b) $9 + \frac{3}{2b^2} = 8b$
(c) $(k - 10)^2 = -5$
(d) $\frac{x + 5}{2} = 9x^2$

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

5 (a) Factorise $3s^2 - 2s - 1$.
Faktorkan $3s^2 - 2s - 1$.
(b) Solve the equation $\frac{3t^2 + 1}{6t} = \frac{2}{3}$.
Selesaikan persamaan $\frac{3t^2 + 1}{6t} = \frac{2}{3}$.

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

6 Solve the quadratic equation $\frac{6(4x^2 - 2)}{7} = 6x$.
Selesaikan persamaan kuadratik $\frac{6(4x^2 - 2)}{7} = 6x$.

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

7 Solve the following equations:
Selesaikan persamaan-persamaan berikut:
(a) $m(3m + 9) + 6 = 0$
(b) $(4n + 4)^2 = 25n^2$

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

8 Solve the quadratic equation $3x^2 + 7x = 4(2 + 3x)$.
Selesaikan persamaan kuadratik $3x^2 + 7x = 4(2 + 3x)$.

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

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

(a) $4x^2 + \frac{x}{3} = 0$

(b) $\frac{6y}{5} = \frac{5 + 5y}{y}$

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

10 (a) Factorise $3p(p + 2) + 3$.
Faktorkan $3p(p + 2) + 3$.

(b) Solve the equation $2q = \frac{5q^2 - 9}{2}$.
Selesaikan persamaan $2q = \frac{5q^2 - 9}{2}$.

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

11 Solve the equation $7x^2 = 3(3x + 3) + 1$.
Selesaikan persamaan $7x^2 = 3(3x + 3) + 1$.

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

12 (a) Factorise $6p(p + 9) + 3p$.
Faktorkan $6p(p + 9) + 3p$.

(b) Solve the equation $(2q - 4)(3q + 5) + 12 = 0$.
Selesaikan persamaan $(2q - 4)(3q + 5) + 12 = 0$.

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

13 Factorise completely.
Faktorkan dengan lengkapnya.

(a) $10p^2 + 8p$

(b) $q^2 - 2q - 3$

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

14 Factorise completely.
Faktorkan dengan lengkapnya.

(a) $3x^2 - 15x + 18$

(b) $13y^3 - 13y$

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

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

(a) $4m^2 = 7m$

(b) $9n(8n + 5) - 4n = -4$

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

16 Factorise completely.
Faktorkan dengan lengkapnya.

(a) $(4p^2 + 5p) - (3p - 6p^2)$

(b) $8q - 8q^3$

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

17 Using factorisation, solve the quadratic equation $6x^2 + 10 = -17x$.
Dengan menggunakan pemfaktoran, selesaikan persamaan kuadratik $6x^2 + 10 = -17x$.

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

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

$$(3x + 1)^2 = 4x + 8$$

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

19 Solve the quadratic equation $\frac{7x(x + 5)}{6} = x + 5$.

Selesaikan persamaan kuadratik $\frac{7x(x + 5)}{6} = x + 5$.

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

20 Solve the equation $x - 5 = \frac{8 - 7x}{5x}$.

Selesaikan persamaan $x - 5 = \frac{8 - 7x}{5x}$.

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

21 Factorise completely.
Faktorkan dengan lengkapnya.
(a) $6s(3s - 4) + 6(5s - 10)$
(b) $9s^2 - 9t^2$

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

22 Solve the equation $\frac{2x^2 - 9x}{x - 6} = 2$.

Selesaikan persamaan $\frac{2x^2 - 9x}{x - 6} = 2$.

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

23 Solve the quadratic equation $x^2 - 8x + 8 = 4(x + 9)$.
Selesaikan persamaan kuadratik $x^2 - 8x + 8 = 4(x + 9)$.

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

24 Solve the quadratic equation $4x(5x - 1) = 6 + 3x$.
Selesaikan persamaan kuadratik $4x(5x - 1) = 6 + 3x$.

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

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

$$5x(14x + 11) = 15$$

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

26 (a) Factorise $3(x^2 + 4) + 13x$.
Faktorkan $3(x^2 + 4) + 13x$.
(b) Solve the equation $\frac{1}{4}y = \frac{y^2 - 5}{2}$.
Selesaikan persamaan $\frac{1}{4}y = \frac{y^2 - 5}{2}$.

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

27 Factorise completely.
Faktorkan dengan lengkapnya.
(a) $62 - 8s^2$
(b) $3(4t - 7)^2 - 8(4t - 7) - 11$

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

BAHAGIAN 2

1 Express $m(5m - 6)$ in the simplest form.
Ungkapkan $m(5m - 6)$ *dalam bentuk termudah.*

A $5m^2 + m - 6$ **C** $5m^2 - 6$
B $5m^2 - 6m$ **D** $6m - 6$

2 Express $m(5m - 6)$ in the simplest form.
Ungkapkan $m(5m - 6)$ *dalam bentuk termudah.*

A $5m^2 + m - 6$ **C** $5m^2 - 6$
B $5m^2 - 6m$ **D** $6m - 6$

3 Express $-2m(9 - 6m)$ in the simplest form.
Ungkapkan $-2m(9 - 6m)$ *dalam bentuk termudah.*

A $12m^2 - 2m + 9$ **C** $12m^2 + 9$
B $12m^2 - 18m$ **D** $-8m + 9$

4 Express $-2m(9 - 6m)$ in the simplest form.
Ungkapkan $-2m(9 - 6m)$ *dalam bentuk termudah.*

A $12m^2 - 2m + 9$ **C** $12m^2 + 9$
B $12m^2 - 18m$ **D** $-8m + 9$

5 Express $(8 - 4t)(-6 - 4t)$ in the simplest form.
Ungkapkan $(8 - 4t)(-6 - 4t)$ *dalam bentuk termudah.*

A $-8t + 2$
B $16t^2 - 48$
C $-8t^2 - 6t + 2$
D $16t^2 - 8t - 48$

6 Express $(n - 7)(5n + 8)$ in the simplest form.
Ungkapkan $(n - 7)(5n + 8)$ *dalam bentuk termudah.*

A $6n + 1$
B $5n^2 - 56$
C $6n^2 + 7n + 1$
D $5n^2 - 27n - 56$

7 $(s - 4t)(4s - 3t) + s(4s + 2t) =$

A $8s^2 - 19st + 12t^2$ **C** $8s^2 - 17st + 12t^2$
B $8s^2 - 19st - 12t^2$ **D** $8s^2 - 17st - 12t^2$

8 Diagram 1 shows a closed box.
Rajah 1 menunjukkan sebuah kotak yang tertutup.

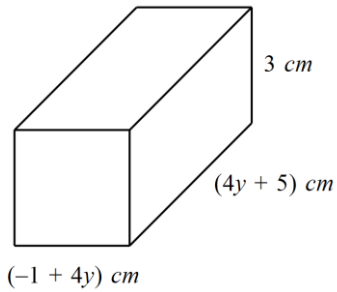

Diagram 1
Rajah 1

Find the quadratic expression for its volume.
Cari persamaan kuadratik bagi isipadunya.

A $48y^2 + 48y - 15$
B $32y^2 + 80y + 14$
C $32y^2 + 32y - 10$
D $16y^2 + 40y + 7$

9 Diagram 2 shows a closed box.
Rajah 2 menunjukkan sebuah kotak yang tertutup.

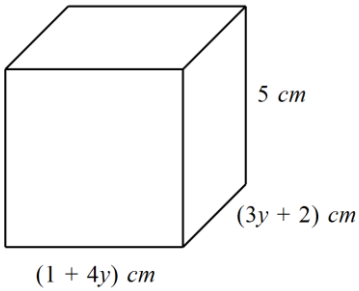

Diagram 2
Rajah 2

Find the quadratic expression for its surface area.
Cari persamaan kuadratik bagi luas permukaannya.

A $60y^2 + 55y + 10$
B $24y^2 + 92y + 34$
C $12y^2 + 46y + 17$
D $24y^2 + 22y + 4$

10 $5q^2 - 6q(8 - 6q) =$

A $-43q - 48q^2$ **C** $41q + 48q^2$

B $41q^2 - 48q$ **D** $41q - 48q^2$

11 $5q^2 - 6q(8 - 6q) =$

A $41q^2 + 48q$ **C** $41q - 48q^2$

B $41q^2 - 48q$ **D** $7q - 48q^2$

12 Factorise $50m^2 - 32$ completely.
Faktorkan $50m^2 - 32$ *dengan lengkapnya.*

A $2(5m - 4)(5m + 4)$

B $2(5m + 4)(5m + 4)$

C $-2(5m - 4)(5m - 4)$

D $-2(5m + 4)(5m - 4)$

13 Factorise $50m^2 - 32$ completely.
Faktorkan $50m^2 - 32$ *dengan lengkapnya.*

A $2(5m - 4)(5m + 4)$

B $2(5m + 4)(5m + 4)$

C $-2(5m - 4)(5m - 4)$

D $-2(5m + 4)(5m - 4)$

14 Factorise $9 - 4m^2$ completely.
Faktorkan $9 - 4m^2$ *dengan lengkapnya.*

A $(3 + 2m)(3 + 2m)$

B $(3 - 2m)(3 + 2m)$

C $(3 - 2m)(3 - 2m)$

D $(2 + 3m)(2 - 3m)$

15 Factorise $9 - 4m^2$ completely.
Faktorkan $9 - 4m^2$ *dengan lengkapnya.*

A $(3 + 2m)(3 + 2m)$

B $(3 - 2m)(3 + 2m)$

C $(3 - 2m)(3 - 2m)$

D $(2 + 3m)(2 - 3m)$

16 Factorise $54 - 96s^2$ completely.
Faktorkan $54 - 96s^2$ *dengan lengkapnya.*

A $-6(3 + 4s)(3 - 4s)$

B $-6(3 - 4s)(3 - 4s)$

C $6(3 + 4s)(3 + 4s)$

D $6(3 - 4s)(3 + 4s)$

17 Factorise $54 - 96s^2$ completely.
Faktorkan $54 - 96s^2$ *dengan lengkapnya.*

A $-6(3 + 4s)(3 - 4s)$

B $-6(3 - 4s)(3 - 4s)$

C $6(3 + 4s)(3 + 4s)$

D $6(3 - 4s)(3 + 4s)$

18 $9x^2 - 27x = \square(x - 3)$

What must be written in the $\square$ above?

Apakah yang mesti ditulis dalam $\square$ *itu?*

A $-9x$ **C** -9

B $9x$ **D** 9

19 $39s^2 + 52 = \square(3s^2 + 4)$

What must be written in the $\square$ above?

Apakah yang mesti ditulis dalam $\square$ *itu?*

A -13 **C** 13

B 15 **D** 12

20 Determine the roots of the quadratic equation $4x^2 + 16x - 9 = 0$.
Tentukan punca-punca bagi persamaan kuadratik $4x^2 + 16x - 9 = 0$.

A $x = 1, x = -\frac{10}{2}$

B $x = -\frac{1}{2}, x = \frac{9}{2}$

C $x = -\frac{1}{3}, x = \frac{9}{3}$

D $x = \frac{1}{2}, x = -\frac{9}{2}$

JAWAPAN

STANDARD FORM

BAHAGIAN 1

1 0.3184 = 0.3
(correct to one significant figure)
(betul kepada satu angka bererti)

2 702.9 − 4.779 + 867.5
= 1 565.621
= 1 565.62
(correct to six significant figures)
(betul kepada enam angka bererti)

3 71.78 + 662 − 0.0835
= 733.6965
= 733.70
(correct to five significant figures)
(betul kepada lima angka bererti)

4 85.7 − 59.69 − 0.5185
= 25.4915
= 25.5
(correct to three significant figures)
(betul kepada tiga angka bererti)

5 7.447×10^3
$= 7.447 \times 1\,000$
= 7 447

6 55.091
$= 5.5091 \times 10$

7 874.3 + 9.884 + 8.002
= 892.186
= 900
(correct to one significant figure)
(betul kepada satu angka bererti)

8 40.501×10^{11}
$= 4.0501 \times 10 \times 10^{11}$
$= 4.0501 \times 10^{1+11}$
$= 4.0501 \times 10^{12}$

9 54.4 × 43.7 × 0.78
= 1 854.2784
= 2 000
(correct to one significant figure)
(betul kepada satu angka bererti)

10 1.176 × 6.797 ÷ 0.00294
= 2 718.8
= 2 700
(correct to two significant figures)
(betul kepada dua angka bererti)

11 $7.99 \times 10^{-15} - 7.9 \times 10^{-16}$
$= 7.99 \times 10^{-15} - 7.9 \times 10^{-1} \times 10^{-15}$
$= 7.99 \times 10^{-15} - 0.79 \times 10^{-15}$
$= (7.99 - 0.79) \times 10^{-15}$
$= 7.2 \times 10^{-15}$

12 $(7.4 \times 10^{-13}) \times (8.6 \times 10^{-11})$
$= (7.4 \times 8.6) \times (10^{-13} \times 10^{-11})$
$= 63.64 \times 10^{-24}$
$= 6.364 \times 10^{1} \times 10^{-24}$
$= 6.364 \times 10^{-23}$

13 150.1 ÷ 475 ÷ 987.5
= 0.00032
= 0.0003
(correct to one significant figure)
(betul kepada satu angka bererti)

14 0.8828 ÷ 0.061 × 585.6
= 8 474.88
= 8 474.9
(correct to five significant figures)
(betul kepada lima angka bererti)

15 $9.68 \times 10^{-13} + 4.7 \times 10^{-14}$
$= 9.68 \times 10^{-13} + 4.7 \times 10^{-1} \times 10^{-13}$
$= 9.68 \times 10^{-13} + 0.47 \times 10^{-13}$
$= (9.68 + 0.47) \times 10^{-13}$
$= 1.015 \times 10^{-12}$

16 $\dfrac{6.12 \times 10^{-3}}{1.8 \times 10^{-9}}$
$= \dfrac{6.12}{1.8} \times \dfrac{10^{-3}}{10^{-9}}$
$= 3.4 \times 10^{6}$

BAHAGIAN 2

1 C	**2** D	**3** C	**4** A	**5** C
6 B	**7** D	**8** D	**9** A	**10** D
11 A	**12** D	**13** C	**14** B	**15** A
16 D	**17** D	**18** B	**19** B	**20** C
21 C	**22** B	**23** B	**24** C	**25** C
26 A	**27** B	**28** A	**29** B	**30** D
31 A	**32** C	**33** A	**34** B	**35** A
36 D	**37** A	**38** B	**39** D	**40** C
41 C	**42** A	**43** C	**44** B	**45** C

QUADRATIC EQUATION & EXPRESSION

BAHAGIAN 1

1 (a) $2m(4m - 10)$
$= (2m)(4m) + (2m)(-10)$
$= 8m^2 - 20m$

(b) $(3n - 1)(4n + 9)$
$= (3n)(4n) + (3n)(9) + (-1)(4n) + (-1)(9)$
$= 12n^2 + 27n - 4n - 9$
$= 12n^2 + 23n - 9$

2 Volume of the box
Isipadu kotak
$= (3q - 6) \times (2q - 2 - 6) \times 3$
$= (3q - 6) \times (2q - 8) \times 3$
$= ((3q)(2q) + (3q)(-8) + (-6)(2q) + (-6)(-8)) \times 3$
$= (6q^2 - 24q - 12q + 48) \times 3$
$= 18q^2 - 108q + 144$

3 (a) $4p(5 - p) = 2p^2 + 4$
$20p - 4p^2 = 2p^2 + 4$
$2p^2 + 4p^2 - 20p + 4 = 0$
$6p^2 - 20p + 4 = 0$

(b) $4m^2 + (5m + 4)^2 = 4$
$4m^2 + (5m + 4)(5m + 4) = 4$
$4m^2 + 25m^2 + 20m + 20m + 16 - 4 = 0$
$29m^2 + 40m + 12 = 0$

4 (a) No
Bukan

(b) No
Bukan

(c) Yes
Ya

(d) Yes
Ya

5 (a) $3s^2 - 2s - 1$
$= (s - 1)(3s + 1)$

(b) $\frac{3t^2 + 1}{6t} = \frac{2}{3}$
$3(3t^2 + 1) = 6t(2)$
$9t^2 + 3 = 12t$
$9t^2 - 12t + 3 = 0$
$3t^2 - 4t + 1 = 0$
$(t - 1)(3t - 1) = 0$
$(t - 1) = 0$ or $(3t - 1) = 0$
$(t - 1) = 0$ atau $(3t - 1) = 0$
$t = 1$ or $t = \frac{1}{3}$
$t = 1$ atau $t = \frac{1}{3}$

6 $\frac{6(4x^2 - 2)}{7} = 6x$
$6(4x^2 - 2) = 42x$
$24x^2 - 12 = 42x$
$24x^2 - 42x - 12 = 0$
$4x^2 - 7x - 2 = 0$
$(x - 2)(4x + 1) = 0$
$(x - 2) = 0$ or $(4x + 1) = 0$
$(x - 2) = 0$ atau $(4x + 1) = 0$
$x = 2$ or $x = -\frac{1}{4}$
$x = 2$ atau $x = -\frac{1}{4}$

7 (a) $m(3m + 9) + 6 = 0$
$3m^2 + 9m + 6 = 0$
$m^2 + 3m + 2 = 0$
$(m + 1)(m + 2) = 0$
$(m + 1) = 0$ or $(m + 2) = 0$
$(m + 1) = 0$ atau $(m + 2) = 0$
$m = -1$ or $m = -2$
$m = -1$ atau $m = -2$

(b) $(4n + 4)^2 = 25n^2$
$(4n + 4)(4n + 4) = 25n^2$
$16n^2 + 32n + 16 = 25n^2$
$9n^2 - 32n - 16 = 0$
$(n - 4)(9n + 4) = 0$
$(n - 4) = 0$ or $(9n + 4) = 0$
$(n - 4) = 0$ atau $(9n + 4) = 0$
$n = 4$ or $n = -\frac{4}{9}$
$n = 4$ atau $n = -\frac{4}{9}$

8 $3x^2 + 7x = 4(2 + 3x)$
$3x^2 + 7x = 8 + 12x$
$3x^2 - 5x - 8 = 0$
$(3x - 8)(x + 1) = 0$
$(3x - 8) = 0$ or $(x + 1) = 0$
$(3x - 8) = 0$ atau $(x + 1) = 0$
$x = \frac{8}{3}$ or $x = -1$
$x = \frac{8}{3}$ atau $x = -1$

9 (a) $4x^2 + \frac{x}{3} = 0$
$12x^2 + x = 0$
$x(12x + 1) = 0$
$x = 0$ or $(12x + 1) = 0$
$x = 0$ atau $(12x + 1) = 0$
$x = 0$ or $x = -\frac{1}{12}$
$x = 0$ atau $x = -\frac{1}{12}$

(b) $\frac{6y}{5} = \frac{5 + 5y}{y}$
$y(6y) = 5(5 + 5y)$
$6y^2 = 25 + 25y$
$6y^2 - 25y - 25 = 0$
$(y - 5)(6y + 5) = 0$
$(y - 5) = 0$ or $(6y + 5) = 0$
$(y - 5) = 0$ atau $(6y + 5) = 0$

$y = 5$ or $y = -\frac{5}{6}$

$y = 5$ atau $y = -\frac{5}{6}$

10 (a) $3p(p + 2) + 3$
$= 3p^2 + 6p + 3$
$= 3(p^2 + 2p + 1)$
$= 3(p + 1)(p + 1)$

(b) $2q = \frac{5q^2 - 9}{2}$
$4q = 5q^2 - 9$
$5q^2 - 4q - 9 = 0$
$(5q - 9)(q + 1) = 0$
$(5q - 9) = 0$ or $(q + 1) = 0$
$(5q - 9) = 0$ atau $(q + 1) = 0$
$q = \frac{9}{5}$ or $q = -1$
$q = \frac{9}{5}$ atau $q = -1$

11 $7x^2 = 3(3x + 3) + 1$
$7x^2 = 9x + 9 + 1$
$7x^2 - 9x - 10 = 0$
$(x - 2)(7x + 5) = 0$
$(x - 2) = 0$ or $(7x + 5) = 0$
$(x - 2) = 0$ atau $(7x + 5) = 0$
$x = 2$ or $x = -\frac{5}{7}$
$x = 2$ atau $x = -\frac{5}{7}$

12 (a) $6p(p + 9) + 3p$
$= 6p^2 + 54p + 3p$
$= 6p^2 + 57p$
$= 3p(2p + 19)$

(b) $(2q - 4)(3q + 5) + 12 = 0$
$6q^2 + 10q - 12q - 20 + 12 = 0$
$6q^2 - 2q - 8 = 0$
$3p^2 - p - 4 = 0$
$(3p - 4)(p + 1) = 0$
$(3p - 4) = 0$ or $(p + 1) = 0$
$(3p - 4) = 0$ atau $(p + 1) = 0$
$p = \frac{4}{3}$ or $p = -1$
$p = \frac{4}{3}$ atau $p = -1$

13 (a) $10p^2 + 8p$
$= 2p(5p + 4)$

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

14 (a) $3x^2 - 15x + 18$
$= 3(x^2 - 5x + 6)$
$= 3(x - 3)(x - 2)$

(b) $13y^3 - 13y$
$= 13y(y^2 - 1)$
$= 13y(y - 1)(y + 1)$

15 (a) $4m^2 = 7m$
$4m^2 - 7m = 0$
$m(4m - 7) = 0$
$m = 0$ or $(4m - 7) = 0$
$m = 0$ atau $(4m - 7) = 0$
$m = 0$ or $m = \frac{7}{4}$
$m = 0$ atau $m = \frac{7}{4}$

(b) $9n(8n + 5) - 4n = -4$
$72n^2 + 45n - 4n = -4$
$72n^2 + 41n + 4 = 0$
$(8n + 1)(9n + 4) = 0$
$(8n + 1) = 0$ or $(9n + 4) = 0$
$(8n + 1) = 0$ atau $(9n + 4) = 0$
$n = -\frac{1}{8}$ or $n = -\frac{4}{9}$
$n = -\frac{1}{8}$ atau $n = -\frac{4}{9}$

16 (a) $(4p^2 + 5p) - (3p - 6p^2)$
$= 4p^2 + 5p - 3p + 6p^2$
$= 10p^2 + 2p$
$= 2p(5p + 1)$

(b) $8q - 8q^3$
$= 8q(1 - q^2)$
$= 8q(1 - q)(1 + q)$

17 $6x^2 + 10 = -17x$
$6x^2 + 17x + 10 = 0$
$(6x + 5)(x + 2) = 0$
$(6x + 5) = 0$ or $(x + 2) = 0$
$(6x + 5) = 0$ atau $(x + 2) = 0$
$x = -\frac{5}{6}$ or $x = -2$
$x = -\frac{5}{6}$ atau $x = -2$

18 $(3x + 1)^2 = 4x + 8$
$9x^2 + 3x + 3x + 1 = 4x + 8$
$9x^2 + 6x + 1 = 4x + 8$
$9x^2 + 2x - 7 = 0$
$(9x - 7)(x + 1) = 0$
$(9x - 7) = 0$ or $(x + 1) = 0$
$(9x - 7) = 0$ atau $(x + 1) = 0$
$x = \frac{7}{9}$ or $x = -1$
$x = \frac{7}{9}$ atau $x = -1$

19 $\frac{7x(x + 5)}{6} = x + 5$
$7x(x + 5) = 6x + 30$
$7x^2 + 35x = 6x + 30$
$7x^2 + 29x - 30 = 0$
$(7x - 6)(x + 5) = 0$
$(7x - 6) = 0$ or $(x + 5) = 0$
$(7x - 6) = 0$ atau $(x + 5) = 0$

$x = \frac{6}{7}$ or $x = -5$

$x = \frac{6}{7}$ *atau* $x = -5$

20 $x - 5 = \frac{8 - 7x}{5x}$
$(x - 5)5x = 8 - 7x$
$5x^2 - 25x = 8 - 7x$
$5x^2 - 18x - 8 = 0$
$(x - 4)(5x + 2) = 0$
$(x - 4) = 0$ or $(5x + 2) = 0$
$(x - 4) = 0$ atau $(5x + 2) = 0$
$x = 4$ or $x = -\frac{2}{5}$
$x = 4$ atau $x = -\frac{2}{5}$

21 (a) $6s(3s - 4) + 6(5s - 10)$
$= 18s^2 - 24s + 30s - 60$
$= 18s^2 + 6s - 60$
$= 6(3s^2 + s - 10)$
$= 6(3s - 5)(s + 2)$
(b) $9s^2 - 9t^2$
$= 9(s^2 - t^2)$
$= 9(s - t)(s + t)$

22 $\frac{2x^2 - 9x}{x - 6} = 2$
$2x^2 - 9x = 2x - 12$
$2x^2 - 11x + 12 = 0$
$(x - 4)(2x - 3) = 0$
$(x - 4) = 0$ or $(2x - 3) = 0$
$(x - 4) = 0$ atau $(2x - 3) = 0$
$x = 4$ or $x = \frac{3}{2}$
$x = 4$ atau $x = \frac{3}{2}$

23 $x^2 - 8x + 8 = 4(x + 9)$
$x^2 - 8x + 8 = 4x + 36$
$x^2 - 12x - 28 = 0$
$(x - 14)(x + 2) = 0$
$(x - 14) = 0$ or $(x + 2) = 0$
$(x - 14) = 0$ atau $(x + 2) = 0$
$x = 14$ or $x = -2$
$x = 14$ atau $x = -2$

24 $4x(5x - 1) = 6 + 3x$
$20x^2 - 4x = 6 + 3x$
$20x^2 - 7x - 6 = 0$
$(4x - 3)(5x + 2) = 0$
$(4x - 3) = 0$ or $(5x + 2) = 0$
$(4x - 3) = 0$ atau $(5x + 2) = 0$
$x = \frac{3}{4}$ or $x = -\frac{2}{5}$
$x = \frac{3}{4}$ atau $x = -\frac{2}{5}$

25 $5x(14x + 11) = 15$
$70x^2 + 55x = 15$
$70x^2 + 55x - 15 = 0$
$(14x - 3)(x + 1) = 0$
$(14x - 3) = 0$ or $(x + 1) = 0$
$(14x - 3) = 0$ atau $(x + 1) = 0$
$x = \frac{3}{14}$ or $x = -1$
$x = \frac{3}{14}$ atau $x = -1$

26 (a) $3(x^2 + 4) + 13x$
$= 3x^2 + 13x + 12$
$= (3x + 4)(x + 3)$
(b) $\frac{1}{4}y = \frac{y^2 - 5}{2}$
$2(y) = 4(y^2 - 5)$
$2y = 4y^2 - 20$
$4y^2 - 2y - 20 = 0$
$2y^2 - y - 10 = 0$
$(2y - 5)(y + 2) = 0$
$(2y - 5) = 0$ or $(y + 2) = 0$
$(2y - 5) = 0$ atau $(y + 2) = 0$
$y = \frac{5}{2}$ or $y = -2$
$y = \frac{5}{2}$ atau $y = -2$

27 (a) $62 - 8s^2$
$= 2(31 - 4s^2)$
(b) $3(4t - 7)^2 - 8(4t - 7) - 11$
$= 3(4t - 7)(4t - 7) - 8(4t - 7) - 11$
$= 3(16t^2 - 56t + 49) - 32t + 56 - 11$
$= 48t^2 - 168t + 147 - 32t + 56 - 11$
$= 48t^2 - 200t + 192$
$= 8(6t^2 - 25t + 24)$
$= 8(3t - 8)(2t - 3)$

BAHAGIAN 2

1 B	**2** B	**3** B	**4** B	**5** D
6 D	**7** C	**8** A	**9** B	**10** B
11 B	**12** A	**13** A	**14** B	**15** B
16 D	**17** D	**18** B	**19** C	**20** A

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

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