# INTENSIF ASAS

## TINGKATAN 2

# MATEMATIK

| BAB | TOPIK |
|---|---|
| 1 | **POLA DAN JUJUKAN**<br>Bahagian 1<br>Bahagian 2<br>Bahagian 3 |
| 2 | **PEMFAKTORAN & PECAHAN ALGEBRA**<br>Bahagian 1<br>Bahagian 2 |
| 3 | **RUMUS ALGEBRA**<br>Bahagian 1<br>Bahagian 2 |

Professional Maths Centre™
MATHS CATCH

**Dwibahasa**

LEBIH DARI **328 SOALAN** TERPILIH BERTARAF PEPERIKSAAN DAN BERKUALITI TINGGI DAN SANGAT SESUAI UNTUK KEGUNAAN PELAJAR TINGKATAN 2 SEBAGAI LATIHAN ASAS SEMPENA CUTI SEKOLAH

# 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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***"Semoga membantu anak-anak anda"***

# BAB 1: POLA & JUJUKAN

**(A) URUTAN & POLA NOMBOR**

→ ***nombor berpola***

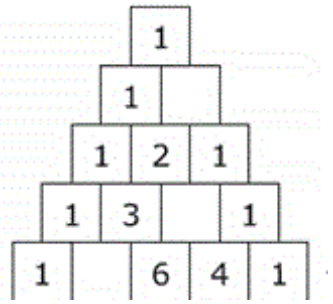
| | |
|---|---|
| Ganji | 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, . . . |
| Genap | 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, . . . |

**BAHAGIAN 1**

1. Lengkapkan Nombor-nombor berikut yang merupakan sebahagian daripada Nombor Fibonacci

0,1,_____,2,3,_____,8,_____

2. Isi Nombor-nombor dalam kotak kosong bagi Segi Tiga Pascal yang berikut .



**BAHAGIAN 2**

| INPUT | OUTPUT |
|---|---|
| **1** List two more numbers for each of the following number sequences:<br>*Senaraikan dua nombor seterusnya untuk urutan nombor berikut:*<br>(a) 70, 71, 73, 76, ____, ____<br>(b) 57, 55, 52, 48, ____, ____<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **1** List two more numbers for each of the following number sequences:<br>*Senaraikan dua nombor seterusnya untuk urutan nombor berikut:*<br>(a) -7, -16, -25, -34, ____, ____<br>(b) 5, 6, 8, 11, ____, ____<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |
| **2** Diagram 1 shows a number sequence.<br>*Rajah 1 menunjukkan satu urutan nombor.*<br>89, *m*, 75, 68, *n*, 54, 47<br>**Diagram 1**<br>***Rajah 1***<br>Based on Diagram 1, what is the sum of *m* and *n*?<br>*Berdasarkan Rajah 1, apakah hasil tambah m dan n?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **2** Diagram 1 shows a number sequence.<br>*Rajah 1 menunjukkan satu urutan nombor.*<br>*x*, 111, 108, 104, 99, *y*, 86<br>**Diagram 1**<br>***Rajah 1***<br>Based on Diagram 1, what is the sum of *x* and *y*?<br>*Berdasarkan Rajah 1, apakah hasil tambah x dan y?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |
| **3** Diagram 1 shows a number sequence.<br>*Rajah 1 menunjukkan satu urutan nombor.*<br>17, 19, 22, 26, 31, *s*, *t*<br>**Diagram 1**<br>***Rajah 1***<br>What is the value of *s* and *t*?<br>*Berapakah nilai s dan t?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **3** Diagram 2 shows a number sequence.<br>*Rajah 2 menunjukkan satu urutan nombor.*<br>129, *s*, *t*, 114, 109, 104, 99<br>**Diagram 2**<br>***Rajah 2***<br>What is the value of *s* and *t*?<br>*Berapakah nilai s dan t?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |

| | |
|---|---|
| **4** The sum of three consecutive odd numbers is 81. What are the three numbers?<br>*Jumlah tiga nombor ganjil yang berturutan ialah 81. Berapakah tiga nombor itu?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **4** The sum of three consecutive odd numbers is 105. What are the three numbers?<br>*Jumlah tiga nombor ganjil yang berturutan ialah 105. Berapakah tiga nombor itu?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |
| **5** The sum of three consecutive even numbers is 210. What are the three numbers?<br>*Jumlah tiga nombor genap yang berturutan ialah 210. Berapakah tiga nombor itu?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **5** The sum of three consecutive even numbers is 108. What are the three numbers?<br>*Jumlah tiga nombor genap yang berturutan ialah 108. Berapakah tiga nombor itu?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |
| **6** (a) The sum of two consecutive even numbers is 26. What are the two numbers?<br>*Jumlah dua nombor genap yang berturutan ialah 26. Berapakah dua nombor itu?*<br>(b) How many odd numbers between 42 and 70 are divisible by 7?<br>*Berapakah bilangan nombor ganjil antara 42 dan 70 yang boleh dibahagikan dengan 7?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **6** (a) The sum of two consecutive even numbers is 34. What are the two numbers?<br>*Jumlah dua nombor genap yang berturutan ialah 34. Berapakah dua nombor itu?*<br>(b) How many odd numbers between 38 and 58 are divisible by 3?<br>*Berapakah bilangan nombor ganjil antara 38 dan 58 yang boleh dibahagikan dengan 3?*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |
| **7** (a) The sum of an even number and an odd number is an _____ number.<br>*Hasil tambah satu nombor genap dan satu nombor ganjil ialah satu nombor _____.*<br>(b) The difference between two even numbers is an _____ number.<br>*Beza antara dua nombor genap ialah satu nombor _____.*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* | **7** (a) The sum of an even number and an odd number is an _____ number.<br>*Hasil tambah satu nombor genap dan satu nombor ganjil ialah satu nombor _____.*<br>(b) The difference between two even numbers is an _____ number.<br>*Beza antara dua nombor genap ialah satu nombor _____.*<br>[3 marks]<br>*[3 markah]*<br>Answer:<br>*Jawapan:* |

**BAHAGIAN 3 :**

| INPUT | OUTPUT |
|---|---|
| **1** Which of the following is a number sequence?<br>*Antara yang berikut, yang manakah satu urutan nombor?*<br>**A** 96, 101, 106, 111, 117, ...<br>**B** 162, 162, 159, 156, 152, ...<br>**C** 168, 163, 158, 153, 148, ...<br>**D** 54, 56, 59, 64, 68, ... | **1** Which of the following is a number sequence?<br>*Antara yang berikut, yang manakah satu urutan nombor?*<br>**A** 113, 110, 105, 101, 97, ...<br>**B** 78, 81, 85, 90, 95, ...<br>**C** 99, 106, 115, 123, 131, ...<br>**D** 114, 112, 109, 105, 100, ... |
| **2** Which of the following is **not** a number sequence?<br>*Antara yang berikut, yang manakah **bukan** satu urutan nombor?*<br>**A** 32, 33, 35, 38, 42, ...<br>**B** 65, 74, 83, 92, 101, ...<br>**C** 184, 181, 177, 172, 166, ...<br>**D** 150, 145, 140, 134, 130, ... | **2** Which of the following is **not** a number sequence?<br>*Antara yang berikut, yang manakah **bukan** satu urutan nombor?*<br>**A** 29, 30, 32, 35, 39, ...<br>**B** 191, 188, 185, 182, 178, ...<br>**C** 21, 25, 29, 33, 37, ...<br>**D** 144, 143, 141, 138, 134, ... |
| **3** Diagram 1 shows a number sequence.<br>*Rajah 1 menunjukkan satu urutan nombor.*<br>106, 116, 127, 139, 152, *s*, *t*, ...<br>**Diagram 1**<br>***Rajah 1***<br>What is the value of *s* and *t*?<br>*Apakah nilai s dan t?*<br>**A** *s* = 165, *t* = 181 **C** *s* = 166, *t* = 182<br>**B** *s* = 166, *t* = 181 **D** *s* = 167, *t* = 181 | **3** Diagram 1 shows a number sequence.<br>*Rajah 1 menunjukkan satu urutan nombor.*<br>161, 154, 148, 143, 139, *x*, *y*, ...<br>**Diagram 1**<br>***Rajah 1***<br>What is the value of *x* and *y*?<br>*Apakah nilai x dan y?*<br>**A** *x* = 136, *y* = 134 **C** *x* = 137, *y* = 134<br>**B** *x* = 136, *y* = 135 **D** *x* = 137, *y* = 135 |

**4** Diagram 3 shows a number sequence.
*Rajah 3 menunjukkan satu urutan nombor.*

−7, 1, 10, 20, 31, *m*, 56, ...

**Diagram 3**
***Rajah 3***

What is the value of *m*?
*Apakah nilai m?*

**A** 43 **C** 45
**B** 44 **D** 46

**4** Diagram 2 shows a number sequence.
*Rajah 2 menunjukkan satu urutan nombor.*

−8, 0, 10, 22, 36, *m*, 70, ...

**Diagram 2**
***Rajah 2***

What is the value of *m*?
*Apakah nilai m?*

**A** 50 **C** 52
**B** 51 **D** 53

**5** Find the sum of all odd numbers between 70 and 74.
*Hitungkan jumlah semua nombor ganjil antara 70 dan 74.*

**A** 144 **C** 146
**B** 145 **D** 217

**5** Find the sum of all odd numbers between 46 and 50.
*Hitungkan jumlah semua nombor ganjil antara 46 dan 50.*

**A** 94 **C** 97
**B** 96 **D** 145

**6** Find the sum of all even numbers between 69 and 73.
*Hitungkan jumlah semua nombor genap antara 69 dan 73.*

**A** 141 **C** 144
**B** 142 **D** 214

**6** Find the sum of all even numbers between 19 and 23.
*Hitungkan jumlah semua nombor genap antara 19 dan 23.*

**A** 41 **C** 43
**B** 42 **D** 64

**7** Find the product of all odd numbers between 34 and 38.
*Hitungkan hasil darab untuk semua nombor ganjil antara 34 dan 38.*

**A** 1 224 **C** 1 295
**B** 1 258 **D** 1 369

**7** Find the product of all odd numbers between 24 and 28.
*Hitungkan hasil darab untuk semua nombor ganjil antara 24 dan 28.*

**A** 675 **C** 729
**B** 700 **D** 18 225

| | |
|---|---|
| **8** Find the product of all even numbers between 29 and 33.<br>*Hitungkan hasil darab untuk semua nombor genap antara 29 dan 33.*<br>**A** 960 **C** 1 024<br>**B** 990 **D** 30 720 | **8** Find the product of all even numbers between 45 and 49.<br>*Hitungkan hasil darab untuk semua nombor genap antara 45 dan 49.*<br>**A** 2 160 **C** 2 304<br>**B** 2 208 **D** 105 984 |
| **9** How many odd numbers between 48 and 68 are divisible by 9?<br>*Berapakah nombor ganjil antara 48 dan 68 yang dapat dibahagikan dengan 9?*<br>**A** 1 **C** 3<br>**B** 2 **D** 4 | **9** How many odd numbers between 66 and 98 are divisible by 5?<br>*Berapakah nombor ganjil antara 66 dan 98 yang dapat dibahagikan dengan 5?*<br>**A** 3 **C** 5<br>**B** 4 **D** 6 |
| **10** How many even numbers between 33 and 57 are divisible by 4?<br>*Berapakah nombor genap antara 33 dan 57 yang dapat dibahagikan dengan 4?*<br>**A** 5 **C** 7<br>**B** 6 **D** 8 | **10** How many even numbers between 29 and 67 are divisible by 5?<br>*Berapakah nombor genap antara 29 dan 67 yang dapat dibahagikan dengan 5?*<br>**A** 4 **C** 6<br>**B** 5 **D** 7 |

# BAB 2: PEMFAKTORAN & PECAHAN ALGEBRA

## (B) UNGKAPAN ALGEBRA

→ ***pembolehubah, objek***

- Sebanyak $T$ orang kanak-kanak telah mengunjungi zoo $H$ pada hari Ahad → pembolehubah, ***T*** ; objek, ***H***

→ ***sebutan algebra*** ~ *hasil darab suatu nombor dengan pembolehubah*

- $8k$ → pekali = **8**, pembolehubah = ***k***
- $\frac{t}{3}$ → pekali = $\frac{1}{3}$, pembolehubah = ***t***
- $-dc^2$ → pekali = **−1**, pembolehubah = ***d***, ***c***

→ ***sebutan serupa, sebutan tak serupa***

| ***sebutan serupa*** | ***sebutan tak serupa*** |
|---|---|
| $5h,\ -h,\ \frac{h}{7},\ \frac{2}{9}h$ **@** $xy,\ \frac{2}{3}xy,\ \frac{yx}{5},\ -yx$ | $6g,\ -3g^2,\ \frac{5}{g},\ \frac{3}{7}k,\ p$ **@** $2abc,\ -4bcd,\ \frac{2}{5}def$ |

→ ***ungkapan algebra***

***(****terdiri daripada satu sebutan algebra @ gabungan sebutan algebra dan nombor dengan operasi + atau / dan −)*

| ***ungkapan algebra*** | ***bilangan sebutan*** | ***Bilangan pembolehubah*** | ***pembolehuhah*** |
|---|---|---|---|
| $3x - 2$ | 2 | 1 | $x$ |
| $5 - 3c + 9q$ | 3 | 2 | $c,\ q$ |
| $-2xy + 4abc + 3$ | 3 | 5 | $x,\ y,\ a,\ b,\ c$ |
| $6 + 3y^2 + y - 11$ | 4 | 1 | $y$ |

→ ***kembang***

- Permudahakan : $2(n + 5) - 3$
  $= 2n + 10 - 3$
  $= 2n + 7$

- Permudahkan : $2p - 3q - (p + 5q)$
  $= 2p - 3q - p - 5q$
  $= p - 8q$

- Permudahkan : $(3p - m)(p + 2m)$
  $= 3p^2 + 6mp - mp - 2m^2$
  $= 3p^2 + 5mp - 2m^2$

- Permudahkan $(3x - 1)^2 - (7x + 4)$
  $= (3x - 1)(3x - 1) - 7x - 4$
  $= 9x^2 - 3x - 3x + 1 - 7x - 4$
  $= 9x^2 - 13x - 4$

→ ***faktor ~ 1***

- Faktor selengkapnya : $p^2 - mp$ (**p**)
  $= p(p - m)$

- Faktor selengkapnya : $4e - 12ef$ (**4e**)
  $= 4e(1 - 3f)$

→ ***faktor ~ 2***

| $a^2 - b^2 = (a + b)(a - b)$ | | | | | | |
|---|---|---|---|---|---|---|
| $1 = 1^2$ | $4 = 2^2$ | $9 = 3^2$ | $16 = 4^2$ | $25 = 5^2$ | $36 = 6^2$ | $49 = 7^2$ |
| $64 = 8^2$ | $81 = 9^2$ | $100 = 10^2$ | $121 = 11^2$ | $144 = 12^2$ | $169 = 13^2$ | $196 = 14^2$ |

- Faktor selengkapnya : $100 - k^2$

  $= 10^2 - k^2$

  $= (10 + k)(10 - k)$

- Faktor selengkapnya : $9x^2 - 1$

  $= 3^2x^2 - 1^2$

  $= (3x + 1)(3x - 1)$

- Faktor selengkapnya : $3x^2 \overset{(3)}{-} 48$

  $= 3(x^2 - 16)$

  $= 3(x^2 - 4^2)$

  $= 3(x + 4)(x - 4)$

- Faktor selengkapnya : $5 \overset{(5)}{-} 20k^2$

  $= 5(1 - 4k^2)$

  $= 3(1^2 - 2^2k^2)$

  $= 3(1 + 2k)(1 - 2k)$

→ ***faktor ~ 3***

- Faktor selengkapnya : $\underset{(3)}{3k} - 3m + \underset{(k)}{kp} - mp$

  $= 3(k - m) + p(k - m)$

  $= (k - m)(3 + p)$

- Faktor selengkapnya : $\underset{(p)}{p^2} + 3p - \underset{(q)}{3q} - pq$

  $= p(p + 3) - q(3 + p)$

  $= (p + 3)(p - q)$

- Faktor selengkapnya : $\underset{(e)}{e^2} - 2e - \underset{(f)}{2f} + ef$

  $= e(e - 2) - f(2 - e)$

  $= e(e - 2) + f(e - 2)$

  $= (e - 2)(e - f)$

- Faktor selengkapnya : $\underset{(2)}{2} - 2w + \underset{(v)}{vw} - v$

  $= 2(1 - w) + v(w - 1)$

  $= e(1 - w) + f(1 - w)$

  $= (1 - w)(e + f)$

- Faktor selengkapnya : $m^2 - 12m + 36$

  $= m^2 \overset{(m)}{-} 6m \overset{(6)}{-} 6m + 36$

  $= m(m - 6) - 6(m - 6)$ @

  $= (m - 6)(m - 6)$

  $= (m - 6)^2$

| | | |
|---|---|---|
| $m$ | $-6$ | $-6m$ |
| $m$ | $-6$ | $-6m$ |
| $m^2$ | $+36$ | $-12m$ |

$= (m - 6)^2$

- Faktor selengkapnya : $3x^2 + 12x + 12$

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

  $= 3(x^2 \overset{(x)}{+} 2x + 2x \overset{(2)}{+} 4)$ @

  $= 3[x(x + 2) + 2(x + 2)]$

  $= 3(x + 2)(x + 2)$

  $= 3(x + 2)^2$

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

| | | |
|---|---|---|
| $x$ | $+2$ | $+2x$ |
| $x$ | $+2$ | $+2x$ |
| $x^2$ | $+4$ | $+4x$ |

$= (x + 2)^2$

→ ***faktor ~ 4***

- Faktor selengkapnya : $3x^2 - 2(x-1) - 7$

$= 3x^2 - 2x + 2 - 7$

$= 3x^2 - 2x - 5$

| | | |
|---|---|---|
| $3x$ | $+5$ | $+5x$ |
| $x$ | $-1$ | $-3x$ |
| $3x^2$ | $-5$ | $-2x$ |

$= (3x+5)(x-1)$

- Faktor selengkapnya : $2m^2 - n(m+n)$

$= 2m^2 - mn - n^2$

| | | |
|---|---|---|
| $2m$ | $+n$ | $+mn$ |
| $m$ | $-n$ | $-2mn$ |
| $3m^2$ | $-n^2$ | $-mn$ |

$= (2m+n)(m-n)$

→ ***pecahan algebra***

- $\frac{1}{5m} - \frac{5-2v}{15mv}$ $(3v)$

$= \frac{3v-(5-2v)}{15mv}$

$= \frac{3v-5+2v}{15mv}$

$= \frac{5v-5}{15mv}$ $(5)$

$= \frac{v-1}{3mv}$

- $\frac{1}{2m} - \frac{m+2}{6m^2}$ $(3m)$

$= \frac{3m-(m+2)}{6m^2}$

$= \frac{3m-m-2}{6m^2}$

$= \frac{2m-2}{6m^2}$ $(2)$

$= \frac{m-1}{3m^2}$

- $\frac{m+3}{3mn} - \frac{2+3n}{6n}$ $(2)$ $(m)$

$= \frac{2m+6-(2m+3mn)}{6mn}$

$= \frac{2m+6-2m-3mn}{6mn}$

$= \frac{6-3mn}{6mn}$ $(3)$

$= \frac{2-mn}{2mn}$

- $\frac{2}{x+3} - \frac{x+5}{x^2-9}$ $(x-3)$

$= \frac{2x-6-(x+5)}{x^2-9}$

$= \frac{2x-6-x-5}{x^2-9}$

$= \frac{x-11}{x^2-9}$

- $\frac{2nm}{p} \times \frac{pq+pm}{nm^2}$ $(p)$

$= \frac{\cancel{2nm}}{\cancel{p}} \times \frac{\cancel{p}(q+m)}{\cancel{nm}m}$

$= \frac{2(q+m)}{m}$

$= \frac{2q+2m}{m}$

- $\frac{2mn+4n}{9-n^2} \div \frac{6mn}{3-n}$ $(2n)$

$= \frac{2\cancel{n}(m+2)}{(3+n)\cancel{(3-n)}} \times \frac{\cancel{3-n}}{3\cancel{6mn}}$

$= \frac{m+2}{3m(3+n)}$

| No | Topic | Mark | HOTS |
|---|---|---|---|
| 1. | 3.6.1: Expansion | 3 | |
| 2. | 3.6.1: Expansion | 3 | |
| 3. | 3.6.1: Expansion | 3 | |
| 4. | 3.6.1: Expansion | 4 | |
| 5. | 3.6.1: Expansion | 4 | |
| 6. | 3.6.1: Expansion | 4 | |
| 7. | 3.6.1: Expansion | 10 | Yes |
| 8. | 3.6.1: Expansion | 10 | Yes |
| 9. | 3.6.1: Expansion | 10 | Yes |
| 10. | 3.6.1: Expansion | 4 | |
| 11. | 3.6.1: Expansion | 4 | |
| 12. | 3.6.2: Factorisation | 4 | |
| 13. | 3.6.2: Factorisation | 4 | |
| 14. | 3.6.2: Factorisation | 3 | |
| 15. | 3.6.2: Factorisation | 3 | |
| 16. | 3.6.2: Factorisation | 10 | Yes |
| 17. | 3.6.2: Factorisation | 10 | Yes |
| 18. | 3.6.2: Factorisation | 4 | |
| 19. | 3.6.2: Factorisation | 4 | |
| 20. | 3.6.2: Factorisation | 4 | |
| 21. | 3.6.2: Factorisation | 3 | |
| 22. | 3.6.4: Multiplication and Division of Algebraic Fractions | 3 | Yes |
| 23. | 3.6.4: Multiplication and Division of Algebraic Fractions | 3 | |
| 24. | 3.6.4: Multiplication and Division of Algebraic Fractions | 3 | Yes |
| 25. | 3.6.4: Multiplication and Division of Algebraic Fractions | 3 | Yes |
| 26. | 3.6.4: Multiplication and Division of Algebraic Fractions | 3 | Yes |
| | TOTAL | 123 | |

**BAHAGIAN 1**

**Question 1/Soalan 1**

1. Simplify $(5h + 5)^2 - (3h + 1)$.
*Permudahkan* $(5h + 5)^2 - (3h + 1)$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 2/Soalan 2**

2. Simplify $(4m - 2n)^2 + 3m(2n + 3m)$.
*Permudahkan* $(4m - 2n)^2 + 3m(2n + 3m)$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 3/Soalan 3**

3. Simplify $4(3b - 1) + (2 + 9b)^2$.
*Permudahkan* $4(3b - 1) + (2 + 9b)^2$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 4/Soalan 4**

4. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $3m(2 - 2n)$
(b) $(2s + 9t)^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 5/Soalan 5**

5. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $(5x - 1)^2$
(b) $(4m - 4n)^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 6/Soalan 6**

6. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $(4x - 2y)(5x - 5y)$
(b) $(5p - 5)(3p - 5)$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 7/Soalan 7**

7. Write three different multiplication problems for which the product is $5x^2 - 20x$.
*Tuliskan tiga masalah pendaraban yang berlainan di mana hasil darabnya ialah* $5x^2 - 20x$.

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 8/Soalan 8**

8. Write two algebraic expressions that have $-8y$ as one of the terms in their product.
*Tuliskan dua ungkapan algebra yang mempunyai* $-8y$ *sebagai salah satu sebutan dalam hasil darab kedua-dua ungkapan tersebut.*

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 9/Soalan 9**

9. Does the product of two algebraic expressions always have three terms? If so, explain why. If not, give a counter-example.
*Adakah hasil darab bagi dua ungkapan algebra sentiasa mempunyai tiga sebutan? Jika ya, terangkan mengapa. Jika tidak, berikan satu contoh penyangkal.*

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 10/Soalan 10**

10. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $2(3 - x)$
(b) $5(4y - 1)^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 11/Soalan 11**

11. (a) Expand:
*Kembangkan:*

$$4(5p - 2)$$

(b) Simplify:
*Permudahkan:*

$$(t - 2s)(t + 2s) - 3t^2$$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 12/Soalan 12**

12. Factorise completely.
*Faktorkan dengan lengkapnya.*
(a) $12p^2 + 3pq$
(b) $a^2 - 5(a + 5) - (3 - 2a)$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 13/Soalan 13**

13. Factorise completely.
*Faktorkan dengan lengkapnya.*
(a) $3s + 27st$
(b) $3b^2 - 48$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 14/Soalan 14**

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

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 15/Soalan 15**

15. State the highest common factor for $8m^2n$ and $4mn^2$.
*Nyatakan faktor sepunya terbesar bagi* $8m^2n$ *dan* $4mn^2$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 16/Soalan 16**

16. Complete the following algebraic expression with a positive integer so that the resulting algebraic expression can be factored.
*Lengkapkan ungkapan algebra berikut dengan satu integer positif supaya ungkapan algebra tersebut boleh difaktorkan.*

$$4c^2 - 16c + \_\_\_\_\_$$

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 17/Soalan 17**

17. Explain why the following algebraic expression cannot be factored.
*Terangkan mengapa ungkapan algebra berikut tidak boleh difaktorkan.*

$$x^2 + x + 7$$

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 18/Soalan 18**

18. Factorise completely each of the following expressions:
*Faktorkan dengan selengkapnya tiap-tiap ungkapan berikut:*
(a) $3x - xy$
(b) $4p - pq^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 19/Soalan 19**

19. Factorise completely each of the following expressions:
*Faktorkan dengan selengkapnya tiap-tiap ungkapan berikut:*
(a) $3s^2 - 2ts$
(b) $pq + q + 4p + 4$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 20/Soalan 20**

20. Factorise completely each of the following expressions:
*Faktorkan dengan selengkapnya tiap-tiap ungkapan berikut:*
(a) $3x - 15$
(b) $5p^2 + 20p + 20$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 21/Soalan 21**

21. Factorise completely.
*Faktorkan dengan lengkapnya.*
(i) $15s^2 + 12st$
(ii) $d^2 - 5(d - 4) - (-5 + 5d)$
(iii) $2x^2 + 16x + 32$

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 22/Soalan 22**

22. Simplify $\frac{5wx}{y^2 - z^2} \div \frac{2x}{y + z}$.
*Permudahkan* $\frac{5wx}{y^2 - z^2} \div \frac{2x}{y + z}$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 23/Soalan 23**

23. Simplify $(2x^2y + 2xy) \times \frac{2}{1 + x}$.
*Permudahkan* $(2x^2y + 2xy) \times \frac{2}{1 + x}$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 24/Soalan 24**

24. Simplify $\frac{2k-4}{2k+4} \times \frac{4k^2-16}{2}$.

*Permudahkan* $\frac{2k-4}{2k+4} \times \frac{4k^2-16}{2}$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 25/Soalan 25**

25. Express $\frac{5s}{t^2-1} \div \frac{3}{2s+2st}$ as a single fraction in its simplest form.

*Ungkapkan* $\frac{5s}{t^2-1} \div \frac{3}{2s+2st}$ *sebagai satu pecahan tunggal dalam bentuk termudah.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 26/Soalan 26**

26. Express $\frac{4p}{q^2-1} \div \frac{4}{2p+2pq}$ as a single fraction in its simplest form.

*Ungkapkan* $\frac{4p}{q^2-1} \div \frac{4}{2p+2pq}$ *sebagai satu pecahan tunggal dalam bentuk termudah.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**BAHAGIAN 2:**

**Question 1/Soalan 1**

1. Simplify $(4d + 1)^2 - (4d - 5)$.
*Permudahkan* $(4d + 1)^2 - (4d - 5)$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 2/Soalan 2**

2. Simplify $(3x + 3y)^2 + 4x(3y - 5x)$.
*Permudahkan* $(3x + 3y)^2 + 4x(3y - 5x)$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 3/Soalan 3**

3. Simplify $4(6a - 4) + (10 + a)^2$.
*Permudahkan* $4(6a - 4) + (10 + a)^2$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 4/Soalan 4**

4. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $2s(1 - t)$
(b) $(5x + y)^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 5/Soalan 5**

5. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $(5h - 5)^2$
(b) $(p + 4q)^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 6/Soalan 6**

6. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $(3m - n)(4m - n)$
(b) $(a - 2)(a - 4)$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 7/Soalan 7**

7. Write three different multiplication problems for which the product is $9x^2 + 18x$.
*Tuliskan tiga masalah pendaraban yang berlainan di mana hasil darabnya ialah* $9x^2 + 18x$.

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 8/Soalan 8**

8. Write two algebraic expressions that have $-10m$ as one of the terms in their product.
*Tuliskan dua ungkapan algebra yang mempunyai –10m sebagai salah satu sebutan dalam hasil darab kedua-dua ungkapan tersebut.*

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 9/Soalan 9**

9. Does the product of two algebraic expressions always have three terms? If so, explain why. If not, give a counter-example.
*Adakah hasil darab bagi dua ungkapan algebra sentiasa mempunyai tiga sebutan? Jika ya, terangkan mengapa. Jika tidak, berikan satu contoh penyangkal.*

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 10/Soalan 10**

10. Expand each of the following expressions.
*Kembangkan setiap ungkapan berikut.*
(a) $4(3 - 4s)$
(b) $5(4t - 1)^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 11/Soalan 11**

11. (a) Expand:
*Kembangkan:*

$$4(4s - 1)$$

(b) Simplify:
*Permudahkan:*

$$(q - 3p)(q + 3p) - 4q^2$$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 12/Soalan 12**

12. Factorise completely.
*Faktorkan dengan lengkapnya.*
(a) $14s^2 + 4st$
(b) $d^2 + 1(d - 1) - (-2 - d)$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 13/Soalan 13**

13. Factorise completely.
*Faktorkan dengan lengkapnya.*
(a) $3p + 18pq$
(b) $3m^2 - 3$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 14/Soalan 14**

14. Factorise $160 - 10d^2$ completely.
*Faktorkan* $160 - 10d^2$ *dengan lengkapnya.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 15/Soalan 15**

15. State the highest common factor for $6p^2q$ and $8pq^2$.
*Nyatakan faktor sepunya terbesar bagi* $6p^2q$ *dan* $8pq^2$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 16/Soalan 16**

16. Complete the following algebraic expression with a positive integer so that the resulting algebraic expression can be factored.
*Lengkapkan ungkapan algebra berikut dengan satu integer positif supaya ungkapan algebra tersebut boleh difaktorkan.*

$$3q^2 - 15q + \_\_\_\_\_$$

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 17/Soalan 17**

17. Explain why the following algebraic expression cannot be factored.
*Terangkan mengapa ungkapan algebra berikut tidak boleh difaktorkan.*

$$s^2 + s + 3$$

[10 *marks*/10 *markah*]

Answer/*Jawapan:*

**Question 18/Soalan 18**

18. Factorise completely each of the following expressions:
*Faktorkan dengan selengkapnya tiap-tiap ungkapan berikut:*
(a) $3p - pq$
(b) $4x - xy^2$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 19/Soalan 19**

19. Factorise completely each of the following expressions:
*Faktorkan dengan selengkapnya tiap-tiap ungkapan berikut:*
(a) $5p^2 - qp$
(b) $st + 5t + 4s + 20$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 20/Soalan 20**

20. Factorise completely each of the following expressions:
*Faktorkan dengan selengkapnya tiap-tiap ungkapan berikut:*
(a) $3p + 12$
(b) $5x^2 + 40x + 80$

[4 *marks*/4 *markah*]

Answer/*Jawapan:*

**Question 21/Soalan 21**

21. Factorise completely.
*Faktorkan dengan lengkapnya.*
(i) $12x^2 + 10xy$
(ii) $k^2 + 2(k + 5) - (4 - 3k)$
(iii) $5s^2 + 50s + 125$

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 22/Soalan 22**

22. Simplify $\frac{4wx}{y^2 - z^2} \div \frac{2x}{y + z}$.
*Permudahkan* $\frac{4wx}{y^2 - z^2} \div \frac{2x}{y + z}$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 23/Soalan 23**

23. Simplify $(2m^2n + 2mn) \times \frac{9}{1 + m}$.
*Permudahkan* $(2m^2n + 2mn) \times \frac{9}{1 + m}$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 24/Soalan 24**

24. Simplify $\frac{3p+2}{3p-2} \times \frac{9p^2-4}{5}$.

*Permudahkan* $\frac{3p+2}{3p-2} \times \frac{9p^2-4}{5}$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 25/Soalan 25**

25. Express $\frac{4s}{t^2-1} \div \frac{3}{2s+2st}$ as a single fraction in its simplest form.

*Ungkapkan* $\frac{4s}{t^2-1} \div \frac{3}{2s+2st}$ *sebagai satu pecahan tunggal dalam bentuk termudah.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 26/Soalan 26**

26. Express $\frac{5p}{q^2-1} \div \frac{1}{2p+2pq}$ as a single fraction in its simplest form.

*Ungkapkan* $\frac{5p}{q^2-1} \div \frac{1}{2p+2pq}$ *sebagai satu pecahan tunggal dalam bentuk termudah.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

# BAB 3: RUMUS ALGEBRA

| No | Topic | Mark | HOTS |
|---|---|---|---|
| 1. | 3.7.2: Formulae | 3 | |
| 2. | 3.7.2: Formulae | 3 | |
| 3. | 3.7.2: Formulae | 3 | |
| 4. | 3.7.2: Formulae | 3 | |
| 5. | 3.7.2: Formulae | 3 | |
| 6. | 3.7.2: Formulae | 3 | |
| 7. | 3.7.2: Formulae | 3 | |
| 8. | 3.7.2: Formulae | 3 | |
| 9. | 3.7.2: Formulae | 3 | |
| 10. | 3.7.2: Formulae | 3 | |
| 11. | 3.7.2: Formulae | 3 | |
| 12. | 3.7.2: Formulae | 3 | |
| 13. | 3.7.2: Formulae | 3 | |
| 14. | 3.7.2: Formulae | 3 | |
| 15. | 3.7.2: Formulae | 3 | |
| 16. | 3.7.2: Formulae | 3 | |
| 17. | 3.7.2: Formulae | 3 | |
| 18. | 3.7.2: Formulae | 3 | |
| 19. | 3.7.2: Formulae | 3 | |
| 20. | 3.7.2: Formulae | 3 | |
| | TOTAL | 60 | |

**(C) RUMUS ALGEBRA** **[ CATATAN : perkara rumus sentiasa positif]**

→ ***perkara rumus***

| | | |
|---|---|---|
| • $\frac{2(p-3)}{k} = 5 \sim (P)$<br>$2p - 6 = 5k$<br>$2p = 5k + 6$<br>$p = \frac{5k+6}{2}$ | • $k - (m + 2) = 3m \sim (m)$<br>$k - m - 2 = 3m$<br>$k - 2 = 3m + m$<br>$k - 2 = 4m$<br>$\frac{k-2}{4} = m$ | • $\frac{8m-2n}{3} = mn+n \sim (m)$<br>$8m - 2n = 3mn + 3n$<br>$8m^{(m)} - 3mn = 3n + 2n$<br>$m(8 - 3n) = 5n$<br>$m = \frac{5n}{8-3n}$ |
| • $m = 5 - 3n^2 \sim (n)$<br>$3n^2 = 5 - m$<br>$n^2 = \frac{5-m}{3}$<br>$n = \sqrt{\frac{5-m}{3}}$ | • $\sqrt{\frac{2+g}{h}} = 3 \sim (g)$<br>$\frac{2+g}{h} = 3^2$<br>$\frac{2+g}{h} = 9$<br>$2 + g = 9h$<br>$g = 9h - 2$ | • $\frac{\sqrt{k+m}}{2} = h \sim (m)$<br>$\sqrt{k+m} = 2k$<br>$k + m = (2k)^2$<br>$k + m = 4k^2$<br>$k = 4k^2 - m$ |

→ ***menentukan nilai suatu pembolehubah***

- Diberi $y = 2p - 4q + 3r$. Cari

  (i) nilai $y$ apabila $p = 5$, $q = -1$ dan $r = 3$

  $\therefore \quad y = 2(5) - 4(-1) + 3(3)$

  $= 18$

  (ii) nilai $q$ apabila $y = 4$, $p = 7$ dan $r = 2$

  $\therefore \quad 4 = 2(7) - 4q + 3(2)$

  $4 = 14 - 4q + 6$

  $4 - 14 - 6 = -4q$

  $4 = q$

**Question 1/Soalan 1**

1. Given that $\frac{8(7x - 6y)}{5y + 2} = 5$, express $x$ in terms of $y$.

   *Diberi* $\frac{8(7x - 6y)}{5y + 2} = 5$, *nyatakan x dalam sebutan y.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 2/Soalan 2**

2. Given that $\frac{8(7m - 4n)}{5n + 8} = 5$, express $m$ in terms of $n$.

   *Diberi* $\frac{8(7m - 4n)}{5n + 8} = 5$, *nyatakan m dalam sebutan n.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 3/Soalan 3**

3. Given that $\frac{2p-7}{2p+q} = 2$, express $p$ in terms of $q$.

*Diberi* $\frac{2p-7}{2p+q} = 2$, *nyatakan p dalam sebutan q.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 4/Soalan 4**

4. Given that $\frac{m-1}{4m+7n} = 5$, express $m$ in terms of $n$.

*Diberi* $\frac{m-1}{4m+7n} = 5$, *nyatakan m dalam sebutan n.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 5/Soalan 5**

5. Given that $x = \frac{5y-7xz}{9}$, express $x$ in terms of $y$ and $z$.

*Diberi* $x = \frac{5y-7xz}{9}$, *nyatakan x dalam sebutan y dan z.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 6/Soalan 6**

6. Given that $s = \frac{3t - 7su}{6}$, express $s$ in terms of $t$ and $u$.

*Diberi* $s = \frac{3t - 7su}{6}$, *nyatakan s dalam sebutan t dan u.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 7/Soalan 7**

7. Given that $81m^2 + 7 = 3n$, express $m$ in terms of $n$.
*Diberi* $81m^2 + 7 = 3n$, *nyatakan m dalam sebutan n.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 8/Soalan 8**

8. Given that $49m^2 + 3 = 3n$, express $m$ in terms of $n$.
*Diberi* $49m^2 + 3 = 3n$, *nyatakan m dalam sebutan n.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 9/Soalan 9**

9. If $z = \frac{5y - 7x^2}{4x}$, then find the value of $y$ when $x = 3$ and $z = 4$.

*Jika* $z = \frac{5y - 7x^2}{4x}$, *maka cari nilai y apabila* $x = 3$ *dan* $z = 4$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 10/Soalan 10**

10. If $r = \frac{q - p^2}{9p}$, then find the value of $q$ when $p = 8$ and $r = 6$.

*Jika* $r = \frac{q - p^2}{9p}$, *maka cari nilai q apabila* $p = 8$ *dan* $r = 6$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 11/Soalan 11**

11. Given that $5x = \frac{4y(2x - 3)}{y + 5}$, express $x$ in terms of $y$.

*Diberi* $5x = \frac{4y(2x - 3)}{y + 5}$, *nyatakan x dalam sebutan y.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 12/Soalan 12**

12. Given that $Y = \frac{a(4b - 5c)}{4d}$, express $b$ in terms of $Y$, $a$, $c$ and $d$.

*Diberi* $Y = \frac{a(4b - 5c)}{4d}$, *nyatakan b dalam sebutan Y, a, c dan d.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 13/Soalan 13**

13. Given that $C = \frac{a(4b + c)}{4d}$, express $b$ in terms of $C$, $a$, $c$ and $d$.

*Diberi* $C = \frac{a(4b + c)}{4d}$, *nyatakan b dalam sebutan C, a, c dan d.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 14/Soalan 14**

14. Given that $3p = \frac{4q}{\sqrt{r}}$, express $r$ in terms of $p$ and $q$.

*Diberi* $3p = \frac{4q}{\sqrt{r}}$, *nyatakan r dalam sebutan p dan q.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 15/Soalan 15**

15. Given that $a - 5 = \frac{4b}{c^2}$, find the value of $a$ if $b = 4$ and $c = 2$.

*Diberi* $a - 5 = \frac{4b}{c^2}$, *cari nilai bagi a jika* $b = 4$ *dan* $c = 2$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 16/Soalan 16**

16. Given that $B = \frac{5d + d^3}{9}$, find the value of $B$ if $d = 5$.

*Diberi* $B = \frac{5d + d^3}{9}$, *cari nilai bagi B jika* $d = 5$.

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 17/Soalan 17**

17. Given that $2p = 3pq + 3$, express $q$ in terms of $p$.
*Diberi* $2p = 3pq + 3$, *nyatakan q dalam sebutan p.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 18/Soalan 18**

18.

Given that $\frac{\sqrt{p+q}}{2} = 3r$, express $q$ in terms of $r$ and $p$.

*Diberi* $\frac{\sqrt{p+q}}{2} = 3r$, *nyatakan q dalam sebutan r dan p.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 19/Soalan 19**

19. Given $\frac{x^2-9}{2} = p$, express $x$ in terms of $p$.

*Diberi* $\frac{x^2-9}{2} = p$, *nyatakan x dalam sebutan p.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**Question 20/Soalan 20**

20.

Given $\frac{\sqrt{5s+3t}}{5} = u$.

*Diberi* $\frac{\sqrt{5s+3t}}{5} = u$.

(i) Express $t$ in terms of $u$ and $s$,
*Ungkapkan t dalam sebutan u dan s,*

(ii) Calculate the value of $t$ if $u = 2$ and $s = 2$.
*Hitungkan nilai t jika u = 2 dan s = 2.*

[3 *marks*/3 *markah*]

Answer/*Jawapan:*

**BAHAGIAN 2**

**1** Given that $s = 4(t + 4u)$, then $t =$
*Diberi* $s = 4(t + 4u)$, *maka* $t =$

**A** $\frac{s - 16u}{4}$ **C** $\frac{s - 4u}{4}$

**B** $\frac{s + 4u}{4}$ **D** $\frac{s + 16u}{4}$

**2** Given that $6p = 9q - 8r$, then $q =$
*Diberi* $6p = 9q - 8r$, *maka* $q =$

**A** $\frac{6p + 8r}{9}$ **C** $\frac{6p + 9}{8r}$

**B** $\frac{6p - 9}{8r}$ **D** $\frac{6p - 8r}{9}$

**3** Given that $s = \frac{3}{5t - 6}$, then $t =$

*Diberi* $s = \frac{3}{5t - 6}$, *maka* $t =$

**A** $\frac{3 + 6s}{5s}$ **C** $\frac{3 + 6s}{5}$

**B** $\frac{3 - 6s}{5}$ **D** $\frac{3 - 6s}{5s}$

**4** Given that $x = 3y + 2z$, express $y$ in terms of $z$ and $x$.
*Diberi bahawa* $x = 3y + 2z$, *ungkapkan* $y$ *dalam sebutan* $z$ *dan* $x$.

**A** $y = \frac{x}{3} + 2z$ **C** $y = \frac{x + 2z}{3}$

**B** $y = \frac{x}{3} - 2z$ **D** $y = \frac{x - 2z}{3}$

**5** Given that $2m - \frac{7n}{8} = 3$, then $m =$

*Diberi* $2m - \frac{7n}{8} = 3$, *maka* $m =$

**A** $\frac{24 + 7n}{16}$ **C** $\frac{3 + 7n}{16}$

**B** $\frac{24 + 7n}{2}$ **D** $\frac{3 + 7n}{2}$

**6** Given that $p = \frac{4d}{4 + 3d}$, express $d$ in terms of $p$.
*Diberi bahawa* $p = \frac{4d}{4 + 3d}$, *ungkapkan* $d$ *dalam sebutan* $p$.

**A** $d = \frac{4p}{4 + 3p}$ **C** $d = \frac{4 + 3p}{4p}$

**B** $d = \frac{4p}{4 - 3p}$ **D** $d = \frac{4 - 3p}{4p}$

**7** Given that $S = \frac{1}{2}\sqrt{\frac{m}{T}}$, express $m$ in terms of $S$ and $T$.
*Diberi bahawa* $S = \frac{1}{2}\sqrt{\frac{m}{T}}$, *ungkapkan* $m$ *dalam sebutan* $S$ *dan* $T$.

**A** $m = \frac{S^2}{4T}$ **C** $m = 4S^2T$

**B** $m = \frac{S^2}{2T}$ **D** $m = 2S^2T$

**8** Given that $n = 4m^2 + 3$, express $m$ in terms of $n$.
*Diberi bahawa* $n = 4m^2 + 3$, *ungkapkan* $m$ *dalam sebutan* $n$.

**A** $m = \frac{\sqrt{n - 3}}{4}$ **C** $m = \sqrt{\frac{n - 3}{4}}$

**B** $m = \frac{\sqrt{n + 3}}{4}$ **D** $m = \sqrt{\frac{n + 3}{4}}$

**9** Given that $s = 4 - 25t^2$, then $t =$
*Diberi* $s = 4 - 25t^2$, *maka* $t =$

**A** $\frac{\sqrt{4 - s}}{5}$ **C** $\sqrt{\frac{4 - s}{5}}$

**B** $\frac{4 - s}{5}$ **D** $\frac{2 - \sqrt{s}}{25}$

**10** Given that $P = 5\left(\sqrt{\frac{1}{H + Q}}\right)$, express $H$ in terms of $P$ and $Q$.
*Diberi bahawa* $P = 5\left(\sqrt{\frac{1}{H + Q}}\right)$, *ungkapkan* $H$ *dalam sebutan* $P$ *dan* $Q$.

**A** $H = \frac{5}{P^2} - Q$ **C** $H = \frac{5}{P^2} - P^2Q$

**B** $H = \frac{25}{P^2} - Q$ **D** $H = \frac{25}{P^2} - P^2Q$

**11** Given that $\frac{s - t}{5} = st + t$, express $s$ in terms of $t$.
*Diberi bahawa* $\frac{s - t}{5} = st + t$, *ungkapkan* $s$ *dalam sebutan* $t$.

**A** $s = \frac{4t}{1 - 5t}$ **C** $s = \frac{6t}{1 - 5t}$

**B** $s = \frac{4t}{5t - 1}$ **D** $s = \frac{6t}{5t - 1}$

**12** Given that $3y = \frac{2y-4}{x-1}$, express $y$ in terms of $x$.
*Diberi bahawa* $3y = \frac{2y-4}{x-1}$, *ungkapkan* $y$ *dalam sebutan* $x$.

**A** $y = \frac{4}{3x}$ **C** $y = \frac{4}{5-3x}$

**B** $y = \frac{4}{3x-5}$ **D** $y = \frac{4}{5+3x}$

**13** Given that $\sqrt{\frac{4m+8n}{9}} = 9$, then $m$ =
*Diberi* $\sqrt{\frac{4m+8n}{9}} = 9$, *maka* $m$ =

**A** $\frac{81-8n}{4}$ **C** $\frac{729-8n}{4}$

**B** $\frac{(729-8n)^2}{4}$ **D** $\frac{(81-8n)^2}{4}$

**14** Given that $p = \frac{5}{9} + \frac{q}{8}$, express $q$ in terms of $p$.
*Diberi bahawa* $p = \frac{5}{9} + \frac{q}{8}$, *ungkapkan* $q$ *dalam sebutan* $p$.

**A** $q = \frac{72p-40}{9}$

**B** $q = \frac{40-72p}{9}$

**C** $q = \frac{5-72p}{9}$

**D** $q = 9p - 5$

**15** Given that $\frac{5}{6x+7y} = 5$, then x =
*Diberi* $\frac{5}{6x+7y} = 5$, *maka* $x$ =

**A** $1 + 35y$ **C** $\frac{1+35y}{30}$

**B** $\frac{1-7y}{6}$ **D** $1 - 35y$

**16** Given that $8r^2 = 49p^2 + 7q^2$, write $p$ in terms of $q$ and $r$.
*Diberi* $8r^2 = 49p^2 + 7q^2$, *tulis p dalam sebutan q dan r.*

**A** $\frac{8r-7q}{49}$ **C** $\frac{\sqrt{8r^2-7q^2}}{49}$

**B** $\frac{\sqrt{8r^2-7q^2}}{7}$ **D** $\frac{8r-7q}{7}$

**17** Given that $4 + 4x^2 = 5(2y + 8x^2)$, express $x$ in terms of $y$.
*Diberi bahawa* $4 + 4x^2 = 5(2y + 8x^2)$, *ungkapkan x dalam sebutan y.*

**A** $x = \frac{\sqrt{4-10y}}{36}$ **C** $x = \frac{\sqrt{4-10y}}{6}$

**B** $x = \frac{\sqrt{10y-4}}{36}$ **D** $x = \frac{\sqrt{10y-4}}{6}$

**18** Given that $\frac{8(4p-q)}{5q} = 7$, then $q$ =
*Diberi* $\frac{8(4p-q)}{5q} = 7$, *maka* $q$ =

**A** $\frac{8p}{43}$ **C** $\frac{8p}{9}$

**B** $\frac{43p}{32}$ **D** $\frac{32p}{43}$

**19** Given that $s = 7t^2 - 4t + 5$, find the value of $s$ when $t = -3$.
*Diberi* $s = 7t^2 - 4t + 5$, *cari nilai s apabila* $t = -3$.

**A** $-28$ **C** 46

**B** $-4$ **D** 80

**20** Given that $x = 2y^2 - y + 2$, find the value of $x$ when $y = -2$.
*Diberi* $x = 2y^2 - y + 2$, *cari nilai x apabila* $y = -2$.

**A** 12 **C** 0

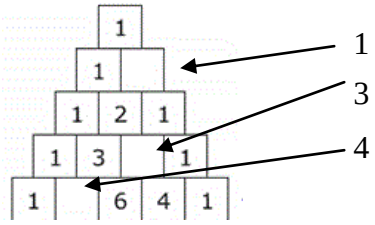
**B** 4 **D** $-4$

# JAWAPAN

## BAB 1: POLA & JUJUKAN

**1** **1,5,13**

**2**




### BAHAGIAN 2 – KIRI

**1** (a) 80, 85
(b) 43, 37

**2** 82 + 61 = 143

**3** $s = 37$, $t = 44$

**4** 25, 27, 29

**5** 68, 70, 72

**6** (a) 12, 14
(b) 2

**7** (a) odd
*ganjil*
(b) even
*genap*

### BAHAGIAN 2 KANAN

**1** (a) -43, -52
(b) 15, 20

**2** 113 + 93 = 206

**3** $s = 124$, $t = 119$

**4** 33, 35, 37

**5** 34, 36, 38

**6** (a) 16, 18
(b) 4

**7** (a) odd
*ganjil*
(b) even
*genap*

### BAHAGIAN 3 KIRI

| | | | | |
|---|---|---|---|---|
| **1** C | **2** D | **3** B | **4** A | **5** A |
| **6** B | **7** C | **8** A | **9** A | **10** B |

### BAHAGIAN 3 KANAN

| | | | | |
|---|---|---|---|---|
| **1** D | **2** B | **3** A | **4** C | **5** B |
| **6** B | **7** A | **8** B | **9** A | **10** A |

## BAB 2: PEMFAKTORAN & PECAHAN ALGEBRA

### BAHAGIAN 1:

1. $(5h + 5)^2 - (3h + 1)$
$= (5h + 5)(5h + 5) - (3h + 1)$
$= 25h^2 + 50h + 25 - (3h + 1)$
$= 25h^2 + 50h - 3h + 25 - 1$
$= 25h^2 + 47h + 24$

2. $(4m - 2n)^2 + 3m(2n + 3m)$
$= (4m - 2n)(4m - 2n) + 3m(2n + 3m)$
$= (4m - 2n)(4m - 2n) + 6mn + 9m^2$
$= 16m^2 - 16mn + 4n^2 + 6mn + 9m^2$
$= 25m^2 - 10mn + 4n^2$

3. $4(3b - 1) + (2 + 9b)^2$
$= 12b - 4 + (2 + 9b)(2 + 9b)$
$= 12b - 4 + 4 + 36b + 81b^2$
$= 81b^2 + 48b$

4. (a) $3m(2 - 2n)$
$= 6m - 6mn$
(b) $(2s + 9t)^2$
$= (2s + 9t)(2s + 9t)$
$= 4s^2 + 36st + 81t^2$

5. (a) $(5x - 1)^2$
$= (5x - 1)(5x - 1)$
$= 25x^2 - 10x + 1$
(b) $(4m - 4n)^2$
$= (4m - 4n)(4m - 4n)$
$= 16m^2 - 32mn + 16n^2$

6. (a) $(4x - 2y)(5x - 5y)$
$= 4x \times 5x + 4x \times (-5y) +$
$(-2y) \times 5x + (-2y) \times (-5y)$
$= 20x^2 - 30xy + 10y^2$
(b) $(5p - 5)(3p - 5)$
$= 5p \times 3p + 5p \times (-5) +$
$(-5) \times 3p + (-5) \times (-5)$
$= 15p^2 - 40p + 25$

7. Sample answer:
*Contoh jawapan:*

$5(x^2 - 4x)$
$5x(x - 4)$
$x(5x - 20)$

8. Sample answer:
*Contoh jawapan:*

$(4y - 4)(5y + 3)$

9. Sample answer:
*Contoh jawapan:*

Not always have three terms. For example:
*Bukan sentiasa mempunyai tiga sebutan. Sebagai contohnya:*
$(2n + 4)(2n - 4)$
$= 4n^2 - 16$

10. (a) $2(3 - x)$
$= 6 - 2x$
(b) $5(4y - 1)^2$
$= 5(16y^2 - 8y + 1)$
$= 80y^2 - 40y + 5$

11. (a) $4(5p - 2)$
$= 20p - 8$
(b) $(t - 2s)(t + 2s) - 3t^2$
$= t^2 + 2st - 2st + 4s^2 - 3t^2$
$= t^2 + 4s^2 - 3t^2$
$= 4s^2 - 2t^2$

12. (a) $12p^2 + 3pq$
$= 3p \times 4p + 3p \times q$
$= 3p(4p + q)$
(b) $a^2 - 5(a + 5) - (3 - 2a)$
$= a^2 - 5a - 25 - 3 + 2a$
$= a^2 - 3a - 28$
$= (a - 7)(a + 4)$

13. (a) $3s + 27st$
$= 3s + 3s \times 9t$
$= 3s(1 + 9t)$
(b) $3b^2 - 48$
$= 3(b^2 - 16)$
$= 3(b - 4)(b + 4)$

14. $4 - 4y^2$
$= 4(1 - y^2)$
$= 4(1 - y)(1 + y)$

15. Factor of $8m^2n$:
*Faktor bagi* $8m^2n$*:*
1, 2, 4, 8, $m$, $n$, $2m$, $2n$, $4m$, $4n$, $8m$, $8n$, $mn$, $2mn$, $4mn$, $8mn$, $m^2$, $2m^2$, $4m^2$, $8m^2$, $m^2n$, $2m^2n$, $4m^2n$, $8m^2n$

Factor of $4mn^2$:
*Faktor bagi* $4mn^2$*:*
1, 2, 4, $m$, $n$, $2m$, $2n$, $4m$, $4n$, $mn$, $2mn$, $4mn$, $n^2$, $2n^2$, $4n^2$, $mn^2$, $2mn^2$, $4mn^2$

Common factor of $8m^2n$ and $4mn^2$:
*Faktor sepunya bagi* $8m^2n$ *dan* $4mn^2$*:*
1, 2, 4, $m$, $n$, $2m$, $2n$, $4m$, $4n$, $mn$, $2mn$, $4mn$

The highest common factor is
*Faktor sepunya terbesar ialah*
$4mn$

16. Sample answer:
*Contoh jawapan:*

$4c^2 - 16c + 15$
$= (2c - 3)(2c - 5)$

17. Sample answer:
*Contoh jawapan:*

The factor of 7 is 1, 7. So, $(1 \times 7)$ or $(-1 \times -7) = 7$.
*Faktor bagi 7 ialah 1, 7. Maka,* $(1 \times 7)$ *atau* $(-1 \times -7) = 7$.

$(x + 1)(x + 7) = x^2 + 8x + 7$
$(x - 1)(x - 7) = x^2 - 8x + 7$

18. (a) $3x - xy$
$= x(3 - y)$
(b) $4p - pq^2$
$= p(4 - q^2)$
$= p(2 + q)(2 - q)$

19. (a) $3s^2 - 2ts$
$= s(3s - 2t)$
(b) $pq + q + 4p + 4$
$= (pq + q) + (4p + 4)$
$= q(p + 1) + 4(p + 1)$
$= (p + 1)(q + 4)$

20. (a) $3x - 15$
$= 3(x - 5)$
(b) $5p^2 + 20p + 20$
$= 5(p^2 + 4p + 4)$
$= 5(p + 2)^2$

21. (i) $15s^2 + 12st$
$= 3s \times 5s + 3s \times 4t$
$= 3s(5s + 4t)$
(ii) $d^2 - 5(d - 4) - (-5 + 5d)$
$= d^2 - 5d + 20 + 5 - 5d$
$= d^2 - 10d + 25$
$= (d - 5)(d - 5)$
(iii) $2x^2 + 16x + 32$
$= 2(x^2 + 8x + 16)$
$= 2(x + 4)^2$

22. $\dfrac{5wx}{y^2 - z^2} \div \dfrac{2x}{y + z}$
$= \dfrac{5wx}{y^2 - z^2} \times \dfrac{y + z}{2x}$
$= \dfrac{5wx}{(y + z)(y - z)} \times \dfrac{y + z}{2x}$

$= \frac{5w}{y-z} \times \frac{1}{2}$

$= \frac{5w}{2(y-z)}$

23. $(2x^2y + 2xy) \times \frac{2}{1+x}$

$= 2xy(x+1) \times \frac{2}{1+x}$

$= 4xy$

24. $\frac{2k-4}{2k+4} \times \frac{4k^2-16}{2}$

$= \frac{2k-4}{2k+4} \times \frac{(2k-4)(2k+4)}{2}$

$= \frac{(2)(2)(k-2)^2}{2}$

$= \frac{4(k-2)^2}{2}$

$= 2(k-2)^2$

25. $\frac{5s}{t^2-1} \div \frac{3}{2s+2st}$

$\frac{5s}{t^2-1} \times \frac{2s+2st}{3}$

$= \frac{5s}{(t+1)(t-1)} \times \frac{2s(1+t)}{3}$

$= \frac{10s^2}{3(t-1)}$

26. $\frac{4p}{q^2-1} \div \frac{4}{2p+2pq}$

$\frac{4p}{q^2-1} \times \frac{2p+2pq}{4}$

$= \frac{4p}{(q+1)(q-1)} \times \frac{2p(1+q)}{4}$

$= \frac{8p^2}{4(q-1)}$

$= \frac{2p^2}{(q-1)}$

**BAHAGIAN 2**

1. $(4d+1)^2 - (4d-5)$
$= (4d+1)(4d+1) - (4d-5)$
$= 16d^2 + 8d + 1 - (4d-5)$
$= 16d^2 + 8d - 4d + 1 + 5$
$= 16d^2 + 4d + 6$

2. $(3x+3y)^2 + 4x(3y-5x)$
$= (3x+3y)(3x+3y) + 4x(3y-5x)$
$= (3x+3y)(3x+3y) + 12xy - 20x^2$
$= 9x^2 + 18xy + 9y^2 + 12xy - 20x^2$
$= -11x^2 + 30xy + 9y^2$

3. $4(6a-4) + (10+a)^2$
$= 24a - 16 + (10+a)(10+a)$
$= 24a - 16 + 100 + 20a + a^2$
$= a^2 + 44a + 84$

4. (a) $2s(1-t)$
$= 2s - 2st$

(b) $(5x+y)^2$
$= (5x+y)(5x+y)$
$= 25x^2 + 10xy + y^2$

5. (a) $(5h-5)^2$
$= (5h-5)(5h-5)$
$= 25h^2 - 50h + 25$

(b) $(p+4q)^2$
$= (p+4q)(p+4q)$
$= p^2 + 8pq + 16q^2$

6. (a) $(3m-n)(4m-n)$
$= 3m \times 4m + 3m \times (-n) + (-n) \times 4m + (-n) \times (-n)$
$= 12m^2 - 7mn + n^2$

(b) $(a-2)(a-4)$
$= a \times a + a \times (-4) + (-2) \times a + (-2) \times (-4)$
$= a^2 - 6a + 8$

7. Sample answer:
*Contoh jawapan:*

$9(x^2+2x)$
$9x(x+2)$
$x(9x+18)$

8. Sample answer:
*Contoh jawapan:*

$(m-2)(4m-2)$

9. Sample answer:
*Contoh jawapan:*

Not always have three terms. For example:
*Bukan sentiasa mempunyai tiga sebutan. Sebagai contohnya:*
$(4p+4)(3p-3)$
$= 12p^2 - 12$

10. (a) $4(3-4s)$
$= 12 - 16s$

(b) $5(4t-1)^2$
$= 5(16t^2 - 8t + 1)$
$= 80t^2 - 40t + 5$

11. (a) $4(4s-1)$
$= 16s - 4$

(b) $(q-3p)(q+3p) - 4q^2$
$= q^2 + 3pq - 3pq + 9p^2 - 4q^2$
$= q^2 + 9p^2 - 4q^2$
$= 9p^2 - 3q^2$

12. (a) $14s^2 + 4st$
$= 2s \times 7s + 2s \times 2t$
$= 2s(7s+2t)$

(b) $d^2 + 1(d-1) - (-2-d)$
$= d^2 + d - 1 + 2 + d$

$= d^2 + 2d + 1$
$= (d + 1)(d + 1)$

13. (a) $3p + 18pq$
$= 3p + 3p \times 6q$
$= 3p(1 + 6q)$
(b) $3m^2 - 3$
$= 3(m^2 - 1)$
$= 3(m - 1)(m + 1)$

14. $160 - 10d^2$
$= 10(16 - d^2)$
$= 10(4 - d)(4 + d)$

15. Factor of $6p^2q$:
*Faktor bagi* $6p^2q$*:*
1, 2, 3, 6, $p$, $q$, $2p$, $2q$, $3p$, $3q$, $6p$, $6q$, $pq$, $2pq$, $3pq$, $6pq$, $p^2$, $2p^2$, $3p^2$, $6p^2$, $p^2q$, $2p^2q$, $3p^2q$, $6p^2q$

Factor of $8pq^2$:
*Faktor bagi* $8pq^2$*:*
1, 2, 4, 8, $p$, $q$, $2p$, $2q$, $4p$, $4q$, $8p$, $8q$, $pq$, $2pq$, $4pq$, $8pq$, $q^2$, $2q^2$, $4q^2$, $8q^2$, $pq^2$, $2pq^2$, $4pq^2$, $8pq^2$

Common factor of $6p^2q$ and $8pq^2$:
*Faktor sepunya bagi* $6p^2q$ *dan* $8pq^2$*:*
1, 2, $p$, $q$, $2p$, $2q$, $pq$, $2pq$

The highest common factor is
*Faktor sepunya terbesar ialah*
$2pq$

16. Sample answer:
*Contoh jawapan:*

$3q^2 - 15q + 12$
$= (q - 4)(3q - 3)$

17. Sample answer:
*Contoh jawapan:*

The factor of 3 is 1, 3. So, $(1 \times 3)$ or $(-1 \times -3) = 3$.
*Faktor bagi 3 ialah 1, 3. Maka,* $(1 \times 3)$ *atau* $(-1 \times -3) = 3$.

$(s + 1)(s + 3) = s^2 + 4s + 3$
$(s - 1)(s - 3) = s^2 - 4s + 3$

18. (a) $3p - pq$
$= p(3 - q)$
(b) $4x - xy^2$
$= x(4 - y^2)$
$= x(2 + y)(2 - y)$

19. (a) $5p^2 - qp$
$= p(5p - q)$
(b) $st + 5t + 4s + 20$
$= (st + 5t) + (4s + 20)$
$= t(s + 5) + 4(s + 5)$
$= (s + 5)(t + 4)$

20. (a) $3p + 12$
$= 3(p + 4)$
(b) $5x^2 + 40x + 80$
$= 5(x^2 + 8x + 16)$
$= 5(x + 4)^2$

21. (i) $12x^2 + 10xy$
$= 2x \times 6x + 2x \times 5y$
$= 2x(6x + 5y)$
(ii) $k^2 + 2(k + 5) - (4 - 3k)$
$= k^2 + 2k + 10 - 4 + 3k$
$= k^2 + 5k + 6$
$= (k + 2)(k + 3)$
(iii) $5s^2 + 50s + 125$
$= 5(s^2 + 10s + 25)$
$= 5(s + 5)^2$

22. $\dfrac{4wx}{y^2 - z^2} \div \dfrac{2x}{y + z}$
$= \dfrac{4wx}{y^2 - z^2} \times \dfrac{y + z}{2x}$
$= \dfrac{4wx}{(y + z)(y - z)} \times \dfrac{y + z}{2x}$
$= \dfrac{4w}{y - z}$

23. $(2m^2n + 2mn) \times \dfrac{9}{1 + m}$
$= 2mn(m + 1) \times \dfrac{9}{1 + m}$
$= 18mn$

24. $\dfrac{3p + 2}{3p - 2} \times \dfrac{9p^2 - 4}{5}$
$= \dfrac{3p + 2}{3p - 2} \times \dfrac{(3p + 2)(3p - 2)}{5}$
$= \dfrac{(3p + 2)^2}{5}$

25. $\dfrac{4s}{t^2 - 1} \div \dfrac{3}{2s + 2st}$
$\dfrac{4s}{t^2 - 1} \times \dfrac{2s + 2st}{3}$
$= \dfrac{4s}{(t + 1)(t - 1)} \times \dfrac{2s(1 + t)}{3}$
$= \dfrac{8s^2}{3(t - 1)}$

26. $\dfrac{5p}{q^2 - 1} \div \dfrac{1}{2p + 2pq}$
$\dfrac{5p}{q^2 - 1} \times \dfrac{2p + 2pq}{1}$
$= \dfrac{5p}{(q + 1)(q - 1)} \times \dfrac{2p(1 + q)}{1}$
$= \dfrac{10p^2}{(q - 1)}$

# BAB 3: RUMUS ALGEBRA

## BAHAGIAN 1

1. $\frac{8(7x - 6y)}{5y + 2} = 5$

$8(7x - 6y) = 5(5y + 2)$
$56x - 48y = 25y + 10$
$56x = 25y + 48y + 10$
$56x = 73y + 10$
$x = \frac{73y + 10}{56}$

2. $\frac{8(7m - 4n)}{5n + 8} = 5$

$8(7m - 4n) = 5(5n + 8)$
$56m - 32n = 25n + 40$
$56m = 25n + 32n + 40$
$56m = 57n + 40$
$m = \frac{57n + 40}{56}$

3. $\frac{2p - 7}{2p + q} = 2$

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

4. $\frac{m - 1}{4m + 7n} = 5$

$m - 1 = 5(4m + 7n)$
$m - 1 = 20m + 35n$
$m - 20m = 35n + 1$
$-19m = 35n + 1$
$m = -\frac{35n + 1}{19}$

5. $x = \frac{5y - 7xz}{9}$

$9x = 5y - 7xz$
$9x + 7xz = 5y$
$x(9 + 7z) = 5y$
$x = \frac{5y}{9 + 7z}$

6. $s = \frac{3t - 7su}{6}$

$6s = 3t - 7su$
$6s + 7su = 3t$
$s(6 + 7u) = 3t$
$s = \frac{3t}{6 + 7u}$

7. $81m^2 + 7 = 3n$
$81m^2 = 3n - 7$
$m^2 = \frac{3n - 7}{81}$
$m = \frac{\sqrt{3n - 7}}{9}$

8. $49m^2 + 3 = 3n$
$49m^2 = 3n - 3$
$m^2 = \frac{3n - 3}{49}$
$m = \frac{\sqrt{3n - 3}}{7}$

9. $x = 3; z = 4$
$1(4) = \frac{5y - 7(3)^2}{4(3)}$
$4 = \frac{5y - 63}{12}$
$4(12) = 5y - 63$
$48 = 5y - 63$
$5y = 48 + 63$
$5y = 111$
$y = \frac{111}{5}$

10. $p = 8; r = 6$
$1(6) = \frac{q - 1(8)^2}{9(8)}$
$6 = \frac{q - 64}{72}$
$6(72) = q - 64$
$432 = q - 64$
$q = 432 + 64$
$q = 496$

11. $5x = \frac{4y(2x - 3)}{y + 5}$
$5x(y + 5) = 4y(2x - 3)$
$5xy + 25x = 8xy - 12y$
$5xy + 25x - 8xy = -12y$
$-3xy + 25x = -12y$
$x(-3y + 25) = -12y$
$x = \frac{-12y}{-3y + 25}$

12. $Y = \frac{a(4b - 5c)}{4d}$
$4Yd = a(4b - 5c)$
$\frac{4Yd}{a} = 4b - 5c$
$\frac{4Yd}{a} + 5c = 4b$
$4b = \frac{4Yd + 5ac}{a}$
$b = \frac{4Yd + 5ac}{4a}$

13. $C = \frac{a(4b + c)}{4d}$
$4Cd = a(4b + c)$
$\frac{4Cd}{a} = 4b + c$

$\frac{4Cd}{a} - c = 4b$

$4b = \frac{4Cd - ac}{a}$

$b = \frac{4Cd - ac}{4a}$

14. $3p = \frac{4q}{\sqrt{r}}$

$3p(\sqrt{r}) = 4q$

$\sqrt{r} = \frac{4q}{3p}$

$r = \frac{16q^2}{9p^2}$

15. $a - 5 = \frac{4b}{c^2}$

$a - 5 = \frac{4(4)}{2^2}$

$a - 5 = \frac{16}{4}$

$a - 5 = 4$

$a = 4 + 5$

$a = 9$

16. $B = \frac{5d + d^3}{9}$

$B = \frac{5(5) + (5)^3}{9}$

$B = \frac{150}{9}$

$B = \frac{50}{3}$

17. $2p = 3pq + 3$

$3pq = 2p - 3$

$q = \frac{2p - 3}{3p}$

18. $\frac{\sqrt{p + q}}{2} = 3r$

$\sqrt{p + q} = 6r$

$(\sqrt{p + q})^2 = (6r)^2$

$p + q = 36r^2$

$q = 36r^2 - p$

19. $\frac{x^2 - 9}{2} = p$

$x^2 - 9 = 2p$

$x^2 = 2p + 9$

$x = \sqrt{2p + 9}$

20. (i) $\frac{\sqrt{5s + 3t}}{5} = u$

$\sqrt{5s + 3t} = 5u$

$(\sqrt{5s + 3t})^2 = (5u)^2$

$5s + 3t = 25u^2$

$3t = 25u^2 - 5s$

$3t = 5(5u^2 - s)$

$t = \frac{5(5u^2 - s)}{3}$

(ii) $t = \frac{5(5u^2 - s)}{3}$

$t = \frac{5(5(2)^2 - (2))}{3}$

$t = 30$

**BAHAGIAN 2**

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

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

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