

**SM SAINS TUANKU AISHAH ROHANI**  
Algebraic (1)

**Paper 1**

Time: 45 minutes

This paper consists of **30** questions. Answer **all** questions. Every question is followed by four alternative answers **A**, **B**, **C** and **D**. For each question, choose **one** answer only. **Blacken** your answer on the objective answer sheet provided. If you wish to change your answer, erase the blackened mark that you have made. Then **blacken** the new answer.

- 1  $\frac{w^2 - x^2}{4y + 5z} \times \frac{8y + 10z}{w + x} =$   
A  $2(w + x)^2$       C  $\frac{2(w - x)}{w + x}$   
B  $2(w + x)$       D  $2(w - x)$
- 2  $48a^2 - 60ac + 40ab - 50bc =$   
A  $(8a + 5b)(6a - 10c)$   
B  $(6a + 5b)(8a - 10c)$   
C  $(48a + 5b)(a - 10c)$   
D  $(6a + 8a)(5b - 10c)$
- 3  $(9x + 4)^2 =$   
A  $81x^2 + 72x - 16$   
B  $81x^2 - 72x - 16$   
C  $81x^2 + 72x + 16$   
D  $81x^2 - 72x + 16$
- 4  $8(5m - 9)^2 - 6m =$   
A  $25m^2 - 96m + 81$   
B  $200m^2 - 714m + 648$   
C  $200m^2 - 726m + 648$   
D  $25m^2 - 84m + 81$
- 5  $-9s + t + 9u - (-4s + t + u) =$   
A  $-13s + 8u$       C  $-5s + 8u$   
B  $-13s + 2t + 10u$       D  $-5s + 2t + 8u$
- 6  $(8x + 7)^2 =$   
A  $64x^2 - 112x + 49$   
B  $64x^2 - 112x - 49$   
C  $64x^2 + 112x - 49$   
D  $64x^2 + 112x + 49$
- 7  $9s^2 - 18su - 21st + 42tu =$   
A  $(3s + 3s)(-6u - 7t)$   
B  $(3s - 7t)(3s - 6u)$   
C  $(9s - 7t)(s - 6u)$   
D  $(3s - 7t)(3s - 6u)$
- 8  $(10b + 7)^2 =$   
A  $100b^2 - 140b + 49$   
B  $100b^2 + 140b - 49$   
C  $100b^2 - 140b - 49$   
D  $100b^2 + 140b + 49$
- 9 Factorise  $a^2 - 16$  completely.  
A  $(a - 4)(a + 4)$   
B  $(a - 4)(a - 4)$   
C  $(a + 4)(a + 4)$   
D  $(a + 4)(a - 4)$
- 10  $\frac{p^2 - q^2}{3r + 2s} \times \frac{12r + 8s}{p + q} =$   
A  $4(p - q)$       C  $4(p + q)$   
B  $4(p + q)^2$       D  $\frac{4(p - q)}{p + q}$
- 11  $(5d - 10)^2 =$   
A  $25d^2 + 100d + 100$   
B  $25d^2 - 100d - 100$   
C  $25d^2 - 100d + 100$   
D  $25d^2 + 100d - 100$
- 12  $9(2h + 1)^2 + h =$   
A  $36h^2 + 35h + 9$   
B  $36h^2 + 37h + 9$   
C  $4h^2 + 3h + 1$   
D  $4h^2 + 5h + 1$
- 13  $6a^2 - 10ac + 27ab - 45bc =$   
A  $(6a + 9b)(a - 5c)$   
B  $(2a + 3a)(9b - 5c)$   
C  $(3a + 9b)(2a - 5c)$   
D  $(2a + 9b)(3a - 5c)$
- 14  $9(8x + 10)^2 - 8x =$   
A  $64x^2 + 152x + 100$   
B  $64x^2 + 168x + 100$   
C  $576x^2 + 1448x + 900$   
D  $576x^2 + 1432x + 900$

- 15  $(8a - 6)^2 =$   
 A  $64a^2 + 96a - 36$   
 B  $64a^2 - 96a + 36$   
 C  $64a^2 + 96a + 36$   
 D  $64a^2 - 96a - 36$
- 16  $-2(5x - 3y^3 - 5) - (6y^3 - 2x + 5) =$   
 A  $-8x + 15$   
 B  $-8x + 5$   
 C  $-12x + 5$   
 D  $12y^3 - 8x + 5$
- 17  $\frac{3m + 3}{3n + 1} + \frac{2m - 1}{3n + 1} =$   
 A  $\frac{5m^2 + 2}{3n + 1}$       C  $\frac{5m + 4}{(3n + 1)^2}$   
 B  $\frac{5m + 2}{3n + 1}$       D  $\frac{5m + 2}{(3n + 1)^2}$
- 18 Factorise  $2c^2 + 3c - 20$  completely.  
 A  $(c + 5)(2c + 4)$   
 B  $(c - 4)(2c + 5)$   
 C  $(c - 5)(2c - 4)$   
 D  $(c + 4)(2c - 5)$
- 19  $\frac{p^2 - q^2}{3r + 2s} \times \frac{6r + 4s}{p - q} =$   
 A  $\frac{2(p + q)}{p - q}$       C  $2(p + q)$   
 B  $2(p - q)^2$       D  $2(p - q)$
- 20 Simplify  $\frac{(4q^3)^2}{16q^2 + 12q}$ .  
 A  $\frac{4q^5}{4q + 3q}$       C  $\frac{4q^4}{4q + 3}$   
 B  $\frac{4q^5}{4q + 3}$       D  $\frac{4q^4}{4q + 3q}$
- 21 Factorise  $6m^2 - 2m - 4$  completely.  
 A  $(2m + 2)(3m - 2)$   
 B  $(2m - 2)(3m - 2)$   
 C  $(2m + 2)(3m + 2)$   
 D  $(2m - 2)(3m + 2)$
- 22  $-3s + 7t + 5u - (-2s + 3t - 4u) =$   
 A  $-5s + 10t + u$       C  $-s + 10t + 9u$   
 B  $-s + 4t + 9u$       D  $-5s + 4t + 9u$
- 23 Simplify  $\frac{5x^2y - 5xy^2}{2x - 2y}$ .  
 A  $5x^2y^2$       C  $x + y$   
 B  $\frac{5xy}{2}$       D  $x - y$
- 24  $3(4n + 3)^2 + 10n =$   
 A  $16n^2 + 34n + 9$   
 B  $16n^2 + 14n + 9$   
 C  $48n^2 + 62n + 27$   
 D  $48n^2 + 82n + 27$
- 25  $\frac{p^2 - q^2}{2r + 5s} \times \frac{10r + 25s}{p - q} =$   
 A  $5(p - q)^2$       C  $\frac{5(p + q)}{p - q}$   
 B  $5(p - q)$       D  $5(p + q)$
- 26 Factorise  $9m^2 - 18m + 5$  completely.  
 A  $(3m + 5)(3m + 1)$   
 B  $(3m - 5)(3m - 1)$   
 C  $(3m + 1)(3m - 5)$   
 D  $(3m - 1)(3m + 5)$
- 27  $-5p + 9q - 4r - (4p + 2q + 2r) =$   
 A  $-9p + 11q - 6r$       C  $-9p + 7q - 6r$   
 B  $-p + 11q - 2r$       D  $-p + 7q - 6r$
- 28  $49a^2 - 49ac - 14ab + 14bc =$   
 A  $(7a - 2b)(7a - 7c)$   
 B  $(49a - 2b)(a - 7c)$   
 C  $(7a - 2b)(7a - 7c)$   
 D  $(7a + 7a)(-7c - 2b)$
- 29  $(8c - 3)^2 =$   
 A  $64c^2 - 48c + 9$   
 B  $64c^2 + 48c - 9$   
 C  $64c^2 - 48c - 9$   
 D  $64c^2 + 48c + 9$
- 30  $40x^2 - 24xz + 60xy - 36yz =$   
 A  $(4x + 6y)(10x - 6z)$   
 B  $(4x + 10x)(6y - 6z)$   
 C  $(40x + 6y)(x - 6z)$   
 D  $(10x + 6y)(4x - 6z)$

Answer:

- |      |      |      |      |      |
|------|------|------|------|------|
| 1 D  | 2 B  | 3 C  | 4 C  | 5 C  |
| 6 D  | 7 D  | 8 D  | 9 A  | 10 A |
| 11 C | 12 B | 13 D | 14 D | 15 B |
| 16 B | 17 B | 18 D | 19 C | 20 B |
| 21 D | 22 B | 23 B | 24 D | 25 D |
| 26 B | 27 C | 28 C | 29 A | 30 A |



16 Given that  $7a - 9 = 3(1 - 2a)$ , then  $a =$

- A  $\frac{12}{7}$                       C  $\frac{12}{13}$   
B  $\frac{4}{3}$                         D  $\frac{10}{13}$

17 Given that  $\frac{n-5}{4} = n - 1$ , then  $n =$

- A  $\frac{1}{3}$                         C  $\frac{1}{5}$   
B  $-\frac{1}{5}$                       D  $-\frac{1}{3}$

18 Given that  $\frac{a-6}{6} = 4$ , then find the value of  $a$ .

- A 38                        C 30  
B 32                        D 21

19 Given that  $5d - 10 = 75$ , then find the value of  $d$ .

- A 13                        C 17  
B 15                        D 25

20 Given that  $6b + 3 = -27$ , then find the value of  $b$ .

- A -13                      C -5  
B -6                        D -2

21 Given that  $4p - 3 = 8(7 - 8p)$ , then  $p =$

- A  $\frac{59}{4}$                       C  $\frac{5}{34}$   
B  $\frac{59}{68}$                      D  $\frac{59}{12}$

22 Given that  $6y + 8 = 98$ , then find the value of  $y$ .

- A 7                         C 15  
B 13                      D 20

23 Given that  $\frac{2b+4}{7} = -2$ , then find the value of  $b$ .

- A -18                      C -9  
B -13                      D -1

24 Given that  $\frac{h+9}{9} = 3$ , then find the value of  $h$ .

- A 21                        C 16  
B 18                        D 9

25 Given that  $\frac{p-3}{2} = -9$ , then find the value of  $p$ .

- A -21                      C -9  
B -15                      D -6

26 Given that  $2y - 3(2 - 7y) = 49$ , then  $y =$

- A  $\frac{55}{23}$                       C  $\frac{55}{2}$   
B  $\frac{51}{23}$                       D  $\frac{55}{9}$

27 Given that  $2a + 5 = 15$ , then find the value of  $a$ .

- A 4                         C 8  
B 5                         D 14

28 Given that  $\frac{9c-4}{6} = c - 3$ , then  $c =$

- A  $\frac{14}{3}$                       C  $-\frac{14}{3}$   
B  $-\frac{14}{15}$                     D  $\frac{14}{15}$

29 Given that  $4(3n - 4) - 8 = 8n$ , then  $n =$

- A 6                         C 3  
B  $\frac{6}{5}$                         D 2

30 Given that  $2d + 2 = -52$ , then find the value of  $d$ .

- A -34                      C -29  
B -31                      D -27

**Answer:**

- |      |      |      |      |      |
|------|------|------|------|------|
| 1 B  | 2 B  | 3 A  | 4 B  | 5 B  |
| 6 B  | 7 D  | 8 D  | 9 B  | 10 C |
| 11 C | 12 D | 13 D | 14 A | 15 C |
| 16 C | 17 D | 18 C | 19 C | 20 C |
| 21 B | 22 C | 23 C | 24 B | 25 B |
| 26 A | 27 B | 28 C | 29 A | 30 D |

**SM SAINS TUANKU AISHAH ROHANI**  
**#Algebra#**

**Paper 1**

Time: 1 hour 15 minutes

This paper consists of **50** questions. Answer **all** questions. Every question is followed by four alternative answers **A, B, C** and **D**. For each question, choose **one** answer only. **Blacken** your answer on the objective answer sheet provided. If you wish to change your answer, erase the blackened mark that you have made. Then **blacken** the new answer.

- 1** Simplify  $4(c^2 - 9) \div \frac{c+3}{6}$ .
- A**  $\frac{2(c+3)}{3}$                       **C**  $24(c-3)$   
**B**  $\frac{2(c-3)^2}{3}$                       **D**  $24(c+3)$
- 2**  $36a^2 + 18ac + 54ab + 27bc =$
- A**  $(6a + 9b)(6a + 3c)$   
**B**  $(36a + 9b)(a + 3c)$   
**C**  $(6a + 9b)(6a - 3c)$   
**D**  $(6a + 6a)(9b + 3c)$
- 3** Simplify  $9(m^2 - 4) \div \frac{m+2}{2}$ .
- A**  $\frac{9(m-2)^2}{2}$                       **C**  $18(m+2)$   
**B**  $\frac{9(m+2)}{2}$                       **D**  $18(m-2)$
- 4** Simplify  $6(d^2 - 4) \div \frac{d+2}{3}$ .
- A**  $2(d+2)$                       **C**  $18(d-2)$   
**B**  $2(d-2)^2$                       **D**  $18(d+2)$
- 5**  $9(9c - 5)^2 + 2c =$
- A**  $81c^2 - 88c + 25$   
**B**  $81c^2 - 92c + 25$   
**C**  $729c^2 - 808c + 225$   
**D**  $729c^2 - 812c + 225$
- 6** Factorise  $3x^2 - 7x - 20$  completely.
- A**  $(x - 5)(3x - 4)$   
**B**  $(x + 5)(3x + 4)$   
**C**  $(x - 4)(3x + 5)$   
**D**  $(x + 4)(3x - 5)$
- 7**  $10s + 3t + 8u - (-3s - 8t + u) =$
- A**  $13s - 5t + 7u$                       **C**  $13s + 11t + 7u$   
**B**  $7s - 5t + 9u$                       **D**  $7s + 11t + 7u$
- 8** Simplify  $\frac{(2b^3)^2}{5b^2 + 20b}$ .
- A**  $\frac{4b^5}{5b+4}$                       **C**  $\frac{4b^5}{5(b+4)}$   
**B**  $\frac{4b^5}{b+4}$                       **D**  $\frac{4b^4}{5(b+4)}$
- 9**  $(2y + 10)^2 =$
- A**  $4y^2 + 40y + 100$   
**B**  $4y^2 - 40y - 100$   
**C**  $4y^2 - 40y + 100$   
**D**  $4y^2 + 40y - 100$
- 10** Simplify  $\frac{3p^2q - 3pq^2}{p - q}$ .
- A**  $3p^2q^2$                       **C**  $p + q$   
**B**  $3pq$                       **D**  $p - q$
- 11** Given that  $(2k + 1) - (3k - 4) = -2$ , then find the value of  $k$ .
- A** 12                      **C** 7  
**B** 8                      **D** 1
- 12** Given that  $\frac{m+3}{9} = 8$ , then find the value of  $m$ .
- A** 71                      **C** 62  
**B** 69                      **D** 59
- 13** Given that  $\frac{5p-7}{7} = -6$ , then find the value of  $p$ .
- A** -17                      **C** -12  
**B** -16                      **D** -7

- 14 Given that  $\frac{a-10}{7} = 9$ , then find the value of  $a$ .
- A 65                      C 70  
B 69                      D 73
- 15 Given that  $2(4x-1) - 1 = 7x$ , then  $x =$
- A 3                      C  $\frac{1}{5}$   
B  $\frac{3}{8}$                       D 2
- 16 Given that  $(4y-2) - (3y+9) = -51$ , then find the value of  $y$ .
- A -32                      C -38  
B -37                      D -40
- 17 Given that  $\frac{m+2}{2} = 3$ , then find the value of  $m$ .
- A -6                      C 10  
B 4                      D 11
- 18 Given that  $2k-5 = 97$ , then find the value of  $k$ .
- A 59                      C 49  
B 51                      D 47
- 19 Given that  $7a-10 = -94$ , then find the value of  $a$ .
- A -8                      C -18  
B -12                      D -19
- 20 Given that  $3b-8 = -32$ , then find the value of  $b$ .
- A -5                      C -7  
B -6                      D -8
- 21 Given that  $3a = 7b - 9c$ , then  $b =$
- A  $\frac{3a+9c}{7}$                       C  $\frac{3a-7}{9c}$   
B  $\frac{3a+7}{9c}$                       D  $\frac{3a-9c}{7}$
- 22 Given that  $s = \frac{8}{9t-5}$ , then  $t =$
- A  $\frac{8-5s}{9s}$                       C  $\frac{8+5s}{9}$   
B  $\frac{8+5s}{9s}$                       D  $\frac{8-5s}{9}$
- 23 Given that  $p = 16 - 9q^2$ , then  $q =$
- A  $\sqrt{\frac{16-p}{3}}$                       C  $\frac{16-p}{3}$   
B  $\frac{\sqrt{16-p}}{3}$                       D  $\frac{4-\sqrt{p}}{9}$
- 24 Given that  $9r^2 = 49p^2 + 5q^2$ , write  $p$  in terms of  $q$  and  $r$ .
- A  $\frac{9r-5q}{49}$                       C  $\frac{\sqrt{9r^2-5q^2}}{49}$   
B  $\frac{9r-5q}{7}$                       D  $\frac{\sqrt{9r^2-5q^2}}{7}$
- 25 Given that  $p = 3q^2 - 4q + 1$ , find the value of  $p$  when  $q = -3$ .
- A -20                      C 14  
B 4                      D 40
- 26 Given that  $8x - \frac{3y}{5} = 7$ , then  $x =$
- A  $\frac{35+3y}{8}$                       C  $\frac{35+3y}{40}$   
B  $\frac{7+3y}{40}$                       D  $\frac{7+3y}{8}$
- 27 Given that  $x = 16 - 25y^2$ , then  $y =$
- A  $\frac{4-\sqrt{x}}{25}$                       C  $\sqrt{\frac{16-x}{5}}$   
B  $\frac{\sqrt{16-x}}{5}$                       D  $\frac{16-x}{5}$
- 28 Given that  $x = 4 - 16y^2$ , then  $y =$
- A  $\frac{2-\sqrt{x}}{16}$                       C  $\sqrt{\frac{4-x}{4}}$   
B  $\frac{\sqrt{4-x}}{4}$                       D  $\frac{4-x}{4}$
- 29 Given that  $\frac{1}{x+2y} = 5$ , then  $x =$
- A  $1-10y$                       C  $1-2y$   
B  $\frac{1-2y}{5}$                       D  $\frac{1-10y}{5}$

30 Given that  $a = 6(b + 7c)$ , then  $b =$

- A  $\frac{a+7c}{6}$                       C  $\frac{a-7c}{6}$   
 B  $\frac{a+42c}{6}$                       D  $\frac{a-42c}{6}$

31 Solve the linear inequality  $\frac{1}{2}h + 1 \leq \frac{1}{2}$ .

- A  $h \leq -1$                       C  $h \leq 1$   
 B  $h \leq 1$                         D  $h \leq 1$

32 Diagram 1 represents two simultaneous linear inequalities in unknown  $n$  on a number line.

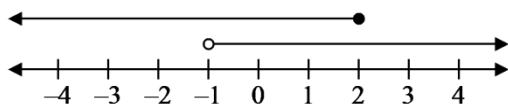


Diagram 1

Which inequality represents the common values of  $n$  for both the inequalities?

- A  $-1 < n \leq 2$                   C  $-1 < n < 2$   
 B  $-1 \leq n < 2$                   D  $-1 \leq n \leq 2$

33 Solve the linear inequality  $39 - 3p > 6p + 3$ .

- A  $p < -4$                         C  $p < 4$   
 B  $p > -4$                         D  $p > 4$

34 Solve the linear inequality  $\frac{1}{4}m + 9 \geq \frac{1}{2}$ .

- A  $m \geq 2$                         C  $m \geq -34$   
 B  $m \geq -2$                         D  $m \geq 34$

35 Solve the linear inequality  $74 - 3x \geq 35$ .

- A  $x \leq -13$                       C  $x \leq 13$   
 B  $x \geq -13$                       D  $x \geq 13$

36 The solution for the simultaneous linear inequalities  $y - 1 \leq 15$  and  $-5y < 5$  is

- A  $-16 < y \leq 1$                   C  $-1 < y \leq 16$   
 B  $-1 \leq y < 16$                   D  $-16 \leq y < 1$

37 Solve the linear inequality  $\frac{5}{7}d + 5 < \frac{3}{7}$ .

- A  $d < \frac{3}{5}$                             C  $d < -\frac{32}{5}$   
 B  $d < \frac{32}{5}$                             D  $d < -\frac{3}{5}$

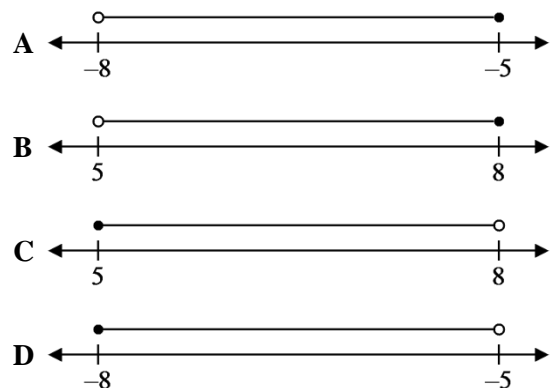
38 Solve the linear inequality  $33 - 2q \leq 21$ .

- A  $q \geq -6$                         C  $q \geq 6$   
 B  $q \leq 6$                          D  $q \leq -6$

39 Solve the linear inequality  $\frac{2}{3}x + 7 > \frac{2}{3}$ .

- A  $x > -1$                         C  $x > \frac{19}{2}$   
 B  $x > -\frac{19}{2}$                         D  $x > 1$

40 Which of the following represents the solution for the linear inequality  $-8 \leq 8 - 2c < -2$ ?



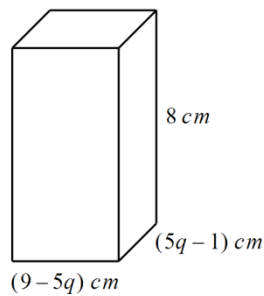
41  $2t^2 + 5t(7 - 6t) =$

- A  $37t + 35t^2$                       C  $-28t^2 + 35t$   
 B  $-28t + 35t^2$                       D  $-28t^2 - 35t$

42 Express  $(4q - 1)(5q + 10)$  in the simplest form.

- A  $20q^2 + 35q - 10$   
 B  $20q^2 - 10$   
 C  $9q^2 + 18q + 9$   
 D  $9q + 9$

- 43 Diagram 2 shows a closed box.



Find the quadratic expression for its volume.

- A**  $-25q^2 + 50q + 55$   
**B**  $-50q^2 + 100q + 110$   
**C**  $-50q^2 + 100q - 18$   
**D**  $-200q^2 + 400q - 72$
- 44 Express  $4s(-10 - s)$  in the simplest form.  
**A**  $3s - 10$                       **C**  $-4s^2 - 40s$   
**B**  $-4s^2 - 10$                     **D**  $-4s^2 + 4s - 10$
- 45  $8p^2 - 6p = \square(4p - 3)$   
What must be written in the  $\square$  above?  
**A** 2                                      **C** -2  
**B**  $2p$                                    **D**  $-2p$
- 46  $58m^2 + 90 = \square(29m^2 + 45)$   
What must be written in the  $\square$  above?  
**A** -3                                      **C** 6  
**B** -2                                      **D** 2
- 47 Factorise  $36 - 25m^2$  completely.  
**A**  $(6 - 5m)(6 - 5m)$   
**B**  $(6 - 5m)(6 + 5m)$   
**C**  $(5 + 6m)(5 - 6m)$   
**D**  $(6 + 5m)(6 + 5m)$
- 48 Factorise  $9 - 49s^2$  completely.  
**A**  $(3 + 7s)(3 + 7s)$   
**B**  $(3 - 7s)(3 + 7s)$   
**C**  $(7 + 3s)(7 - 3s)$   
**D**  $(3 - 7s)(3 - 7s)$

- 49 Factorise  $64s^2 - 64$  completely.

- A**  $-64(s - 1)(s + 1)$   
**B**  $64(s - 1)(s - 1)$   
**C**  $-64(s + 1)(s + 1)$   
**D**  $64(s - 1)(s + 1)$

- 50 Factorise  $36 - 49s^2$  completely.

- A**  $(6 + 7s)(6 + 7s)$   
**B**  $(6 - 7s)(6 + 7s)$   
**C**  $(7 + 6s)(7 - 6s)$   
**D**  $(6 - 7s)(6 - 7s)$

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