Downloaded from Stanmorephysics.com

basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

# NATIONAL ASSESSMENT
# GENERAL EDUCATION CERTIFICATE (GEC)

## 2026 GRADE 9

Subject: MATHEMATICS

Paper: 1

Marks: 75

Duration: 2 hours 30 minutes

**Excluding** 15 minutes reading time.

Stanmorephysics.com

**This paper consists of 19 pages, excluding the cover page.**

Downloaded from Stanmorephysics.com

**Instructions to the learner:**

1. You will receive 15 minutes reading time before you begin answering this paper.
2. Read all the instructions and questions carefully.
3. Answer all the questions in the answer booklet provided.
4. In Section A, do your calculations before choosing the correct option.
5. In Section B, do your calculations before writing your short response.
6. In Section C, show all the necessary calculations.
7. Non-programmable calculators may be used, unless stated otherwise.
8. Diagrams are not necessarily drawn to scale, and all lines are regarded as straight lines, unless stated otherwise.




**The paper starts on the next page.**



**Do not turn the page until you are told to do so.**

Downloaded from Stanmorephysics.com

**SECTION A**

1. Johannesburg has a temperature of $-5$ °C.
   Lesotho's temperature is double this value.
   What is the temperature in Lesotho?

   A $-10$ °C
   B 10 °C
   C $-5$ °C
   D 5 °C (1)

2. $-3^2 \neq (-3)^2$
   Which one of the following agrees with the statement?

   A $-3^2 = 9$ and $(-3)^2 = 9$
   B $-3^2 = -9$ and $(-3)^2 = 9$
   C $-3^2 = -9$ and $(-3)^2 = -9$
   D $-3^2 = 9$ and $(-3)^2 = -9$ (1)

3. Determine the HCF of 90 and 225.

   A 3
   B 9
   C 15
   D 45 (1)

Downloaded from Stanmorephysics.com

4. A hiker walks on a mountain path and her elevation changes as follows:

- She descends 120 m.
- Then she ascends 45 m.
- Then she descends twice the distance she ascended earlier.
- Finally, she ascends 30 m.



What is her change in elevation after completing the hike?

A $-195$ m

B $-165$ m

C $-135$ m

D $-105$ m (1)

5. Two technology startup companies released new mobile applications.
Company A begins with $2 \times 10^3$ users and its user base triples every month.
Company B begins with $5 \times 10^3$ users and its user base doubles every month.
Which company will have bigger number of users after 4 months?

A Company B with $0{,}8 \times 10^2$ users.

B Company B with $8 \times 10^4$ users.

C Company A with $0{,}162 \times 10^3$ users.

D Company A with $1{,}62 \times 10^5$ users. (1)

6. Calculate: $(\sqrt{49} - 3^2)^2 \times 3 \div \sqrt[3]{27} + 4^3$

A 60

B 62

C 66

D 68 (1)

Downloaded from Stanmorephysics.com

7. Simplify: $\frac{3x^2y^3}{(xy^2)^2} + \sqrt[3]{x^6} \times 2(x^2y)^{-1} - \frac{y^{-3} \times (x^2y^{-2})^0}{y^{-2}}$

A $\frac{5x-1}{y}$

B $\frac{5-x}{y}$

C $\frac{4}{y}$

D $\frac{6}{y}$ (1)

8. Sinakho, Allan and Willie invested R4 000, R8 000 and R10 000 respectively. They earned R33 000 interest. The interest is split in the same ratio as their initial contribution.
How much does Allan receive?




A R12 000

B R15 000

C R6 000

D R8 000 (1)

9. Given: 2; 20; 92; …
Which one of the statements describes the pattern?

A Add 18 to the previous term.

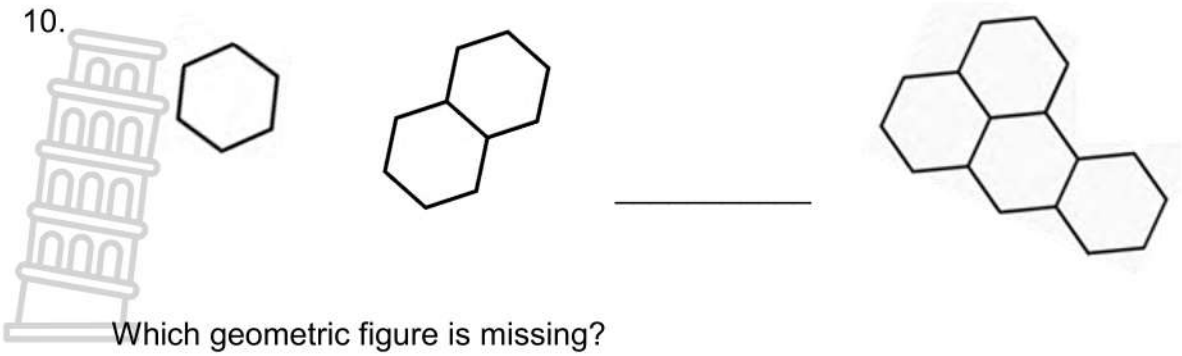
B Multiply the previous term by 10.

C Multiply the previous term by 5 then subtract 8.

D Add 3 to the previous term then multiply by 4. (1)

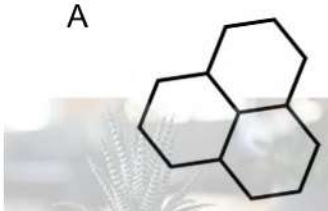
Downloaded from Stanmorephysics.com

10.



Which geometric figure is missing?

A



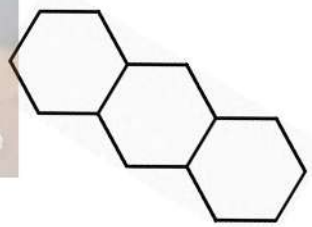
B



C



D



(1)

11.

| $n$ | 1 | 3 | 5 | |
|---|---|---|---|---|
| $T_n$ | 5 | 13 | | 29 |

What is the general rule?

A $T_n = 2n + 3$

B $T_n = 2n^2 + 3$

C $T_n = n^2 + 4$

D $T_n = 4n + 1$ (1)

Downloaded from Stanmorephysics.com

12.

| Years | 0 | 1 | 2 | 3 | | $n$ |
|---|---|---|---|---|---|---|
| Investment with interest | 900 | | | | | 1 710 |

What is the value of $n$ if the simple interest earned is 10% p.a.?

A 9

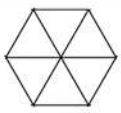
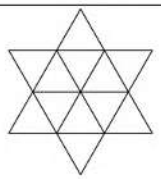
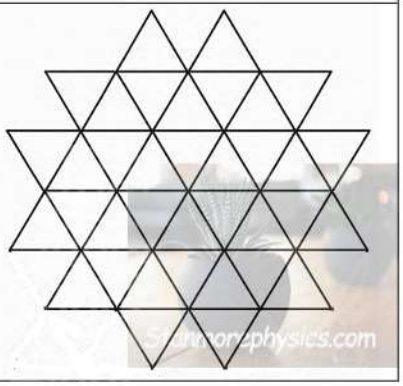
B 5

C 810

D 990 (1)

13. A decorative floor design is created using a repeating geometric pattern made of equilateral triangles as shown below. The figures represent the identified pattern on the floor.



| Figure 1 | Figure 2 | Figure 3 | Figure 4 |
|---|---|---|---|
|  |  | ..... |  |

How many small equilateral triangles will be formed in figure 3?

A 24

B 26

C 38

D 42 (1)

Downloaded from Stanmorephysics.com

14. Simplify: $\frac{12x^3 - x(x-3)}{-x}$

A $12x^2 - x + 3$

B $-12x^2 + x + 3$

C $12x^2 - x - 3$

D $-12x^2 + x - 3$ (1)

15. $(x-2)(x+2)$

Determine the product.

A $x^2 + 4$

B $x^2 - 4$

C $x^2 + 4x + 4$

D $x^2 - 4x - 4$ (1)




16. $p^2 - 2pq + q^3$

Determine the numerical value of the expression if $p = 3$ and $q = -2$.

A 10

B 13

C 29

D 43 (1)

17. Factorise: $x^2 + 7x + 12$

A $(x-3)(x-4)$

B $(x+3)(x+4)$

C $(x-6)(x-2)$

D $(x+6)(x+2)$ (1)

Downloaded from Stanmorephysics.com

18. Factorise fully: $p(x^2 + 3x)^2 - 4p$

A $p(x-2)(x+1)(x^2+3x-2)$

B $p(x+2)(x+1)(x^2+3x-2)$

C $p(x+2)(x+1)(x-2)(x+1)$

D $p(x+2)(x-1)(x-2)(x+1)$ (1)

19. $x - 6 = 8$

What is the value of $x$?

A $14$

B $2$

C $-14$

D $-2$ (1)

20. The sum of two consecutive even numbers is 18.

Which equation represents the statement?

A $2x + (x+2) = 18$

B $2x + (x+1) = 18$

C $2x + (2x+2) = 18$

D $2x + (2x+1) = 18$ (1)

Downloaded from Stanmorephysics.com

21. The table is generated from the equation: $y = \frac{3}{2}x + 5$

| $x$ | $-5$ | $-2$ | $1$ | $b$ |
|---|---|---|---|---|
| $y$ | $-2\frac{1}{2}$ | $2$ | $a$ | $13$ |

What are the values of $a$ and $b$?

A $a = 4$ and $b = 5\frac{1}{3}$

B $a = 4$ and $b = 12$

C $a = 6\frac{1}{2}$ and $b = 12$

D $a = 6\frac{1}{2}$ and $b = 5\frac{1}{3}$ (1)

22. A rectangular garden has a length that is 8 meters longer than its breadth.
The area of the garden is 20 $m^2$.
What are the dimensions of the garden?

A Breadth = 8 m; length = 12 m

B Breadth = 10 m; length = 2 m

C Breadth = 12 m; length = 8 m

D Breadth = 2 m; length = 10 m (1)

23.

| $x$ | 2 | 2 | 2 | 2 | 2 |
|---|---|---|---|---|---|
| $y$ | $-2$ | $-1$ | 0 | 1 | 2 |

Which equation represents the relationship in the table?

A $y = 1$

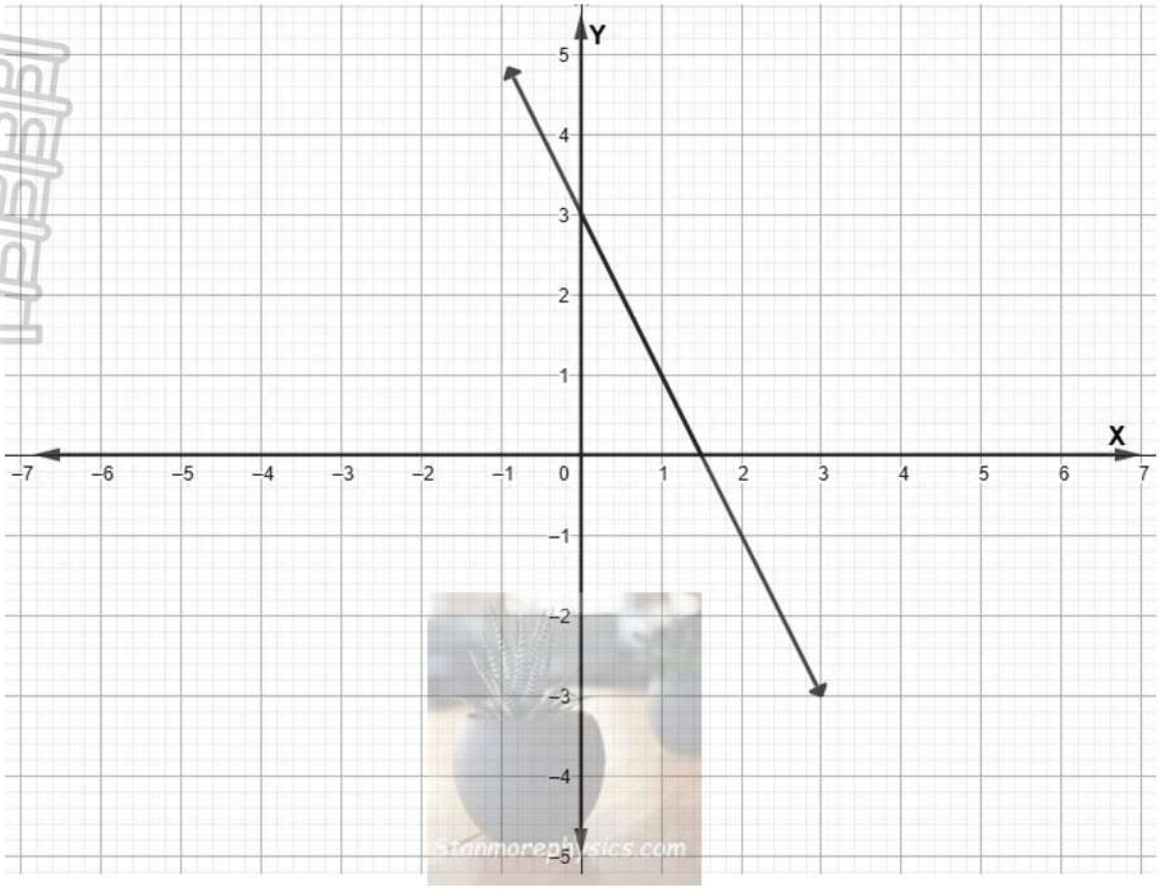
B $x = -2$

C $x = 2$

D $y = -1$ (1)

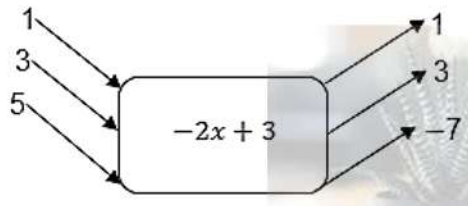
Downloaded from Stanmorephysics.com

24.

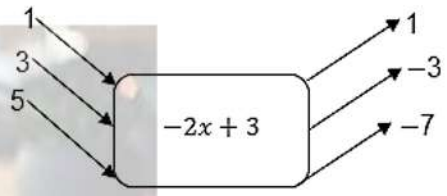



Which flow diagram is a representation of the graph?

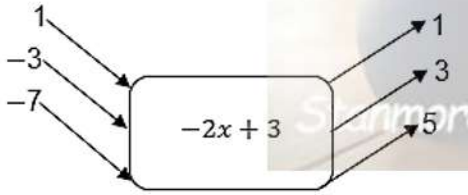
A



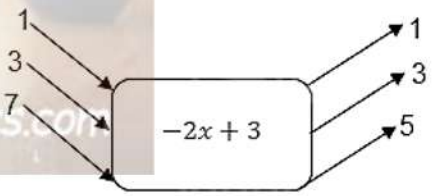

B




C




D

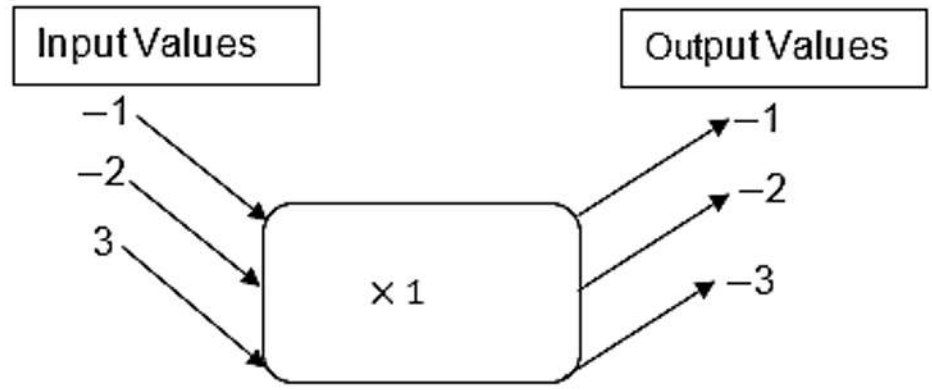



(1)

Downloaded from Stanmorephysics.com

25. Which option is equivalent to $y = x$?

A

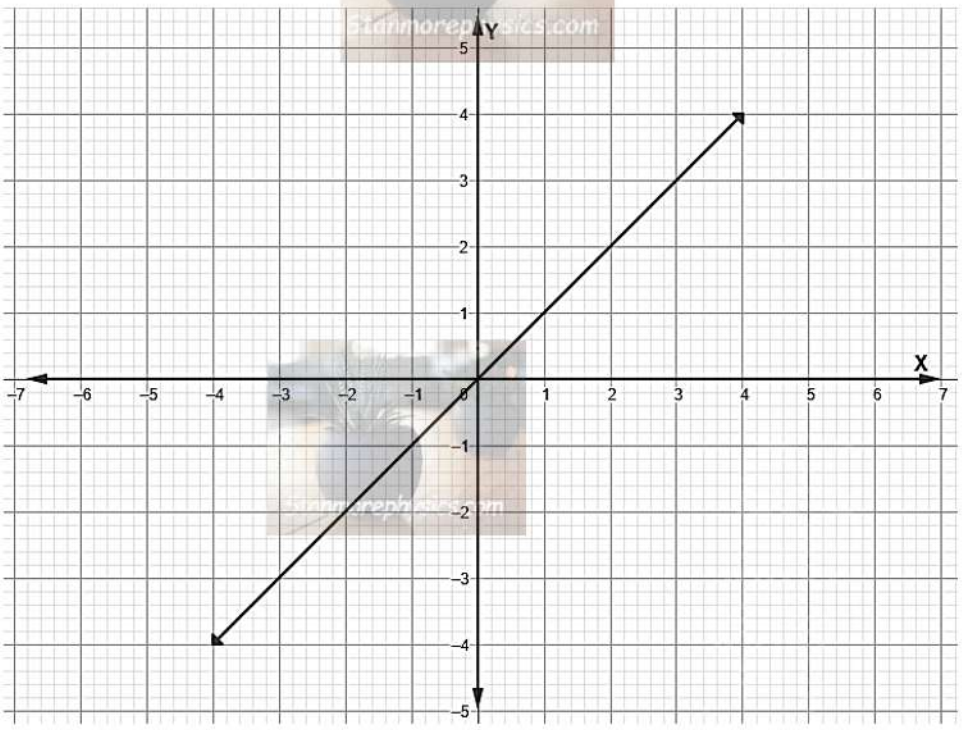



B

| $x$ | $-2$ | $-1$ | $0$ | $1$ | $2$ |
|---|---|---|---|---|---|
| $y$ | $2$ | $1$ | $0$ | $-1$ | $-2$ |

C As the $x$-values increase, the $y$-values decrease.

D




(1)

Downloaded from Stanmorephysics.com

26.

| $x$ | $-2$ | $-1$ | $0$ | $1$ | | $m$ |
|---|---|---|---|---|---|---|
| $y$ | $-3$ | $-1\frac{1}{2}$ | $0$ | $1\frac{1}{2}$ | | $9$ |

What is the value of $m$?

A 2

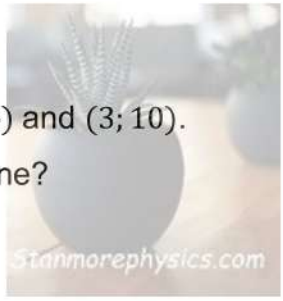
B 6

C 3

D 8 (1)

27. A line passes through $(1; -4)$ and $(3; 10)$.

What is the gradient of the line?




A 7

B 3

C $\frac{1}{3}$

D $\frac{1}{7}$ (1)

28. What is the $y$-intercept of the line $2y = 5x + 2$?

A 2

B 1

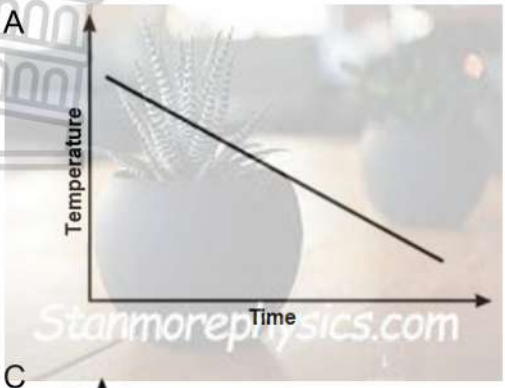
C $\frac{5}{2}$

D $\frac{2}{5}$ (1)

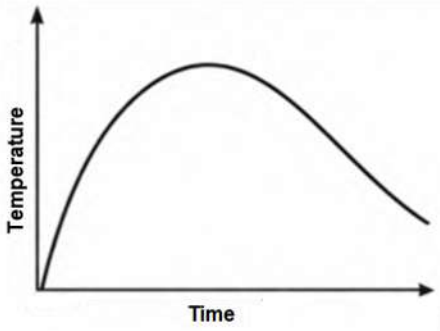
Downloaded from Stanmorephysics.com

29. Which graph represents the temperature in a room that is increasing over time and then remains constant?

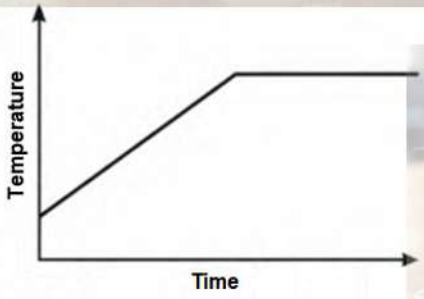
A



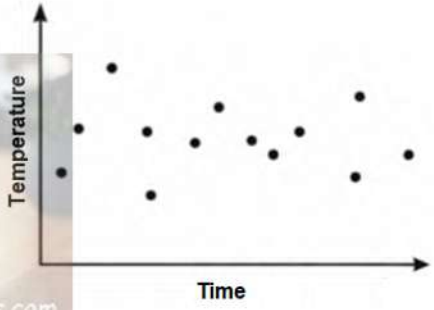

B




C




D

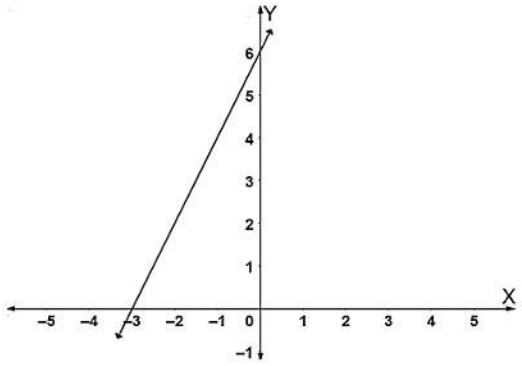



(1)

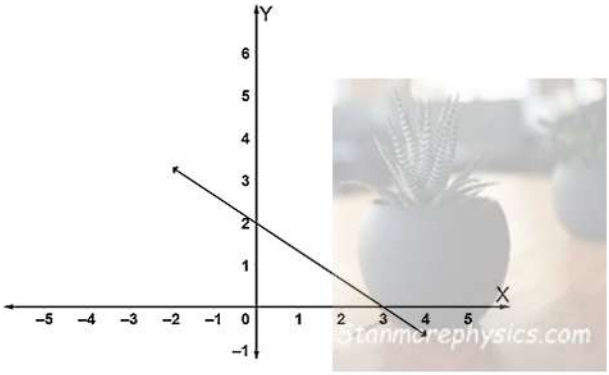
Downloaded from Stanmorephysics.com

30. Which graph represents $3y - 2x = 6$?

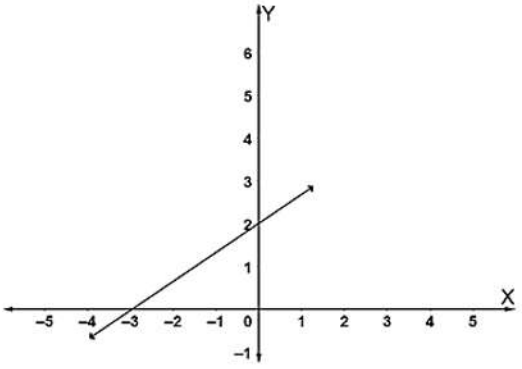
A



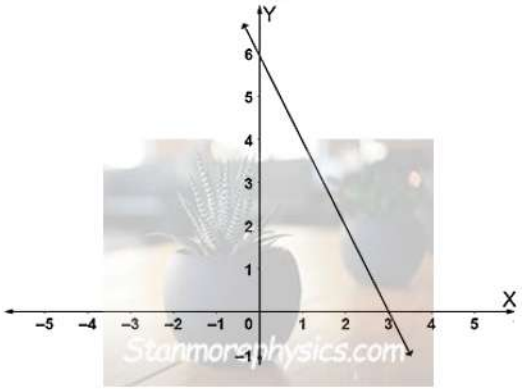

B




C




D




(1)

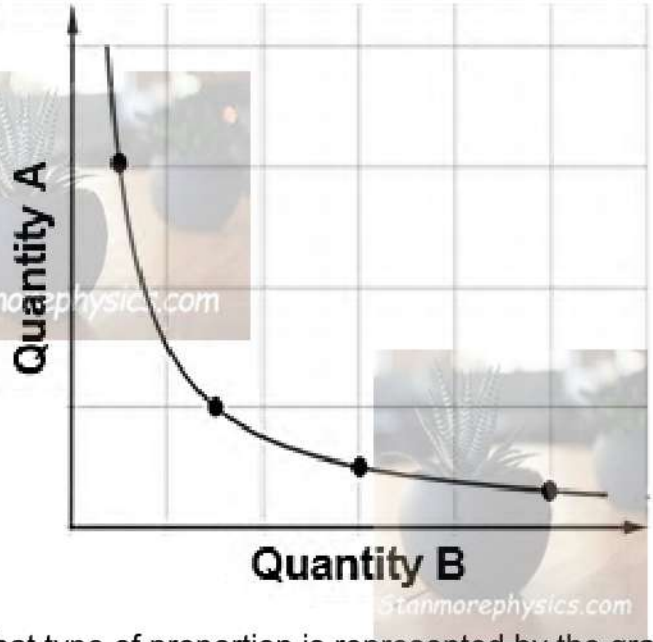
**SECTION A TOTAL: [30]**

Downloaded from Stanmorephysics.com

**SECTION B**

31. What type of a number is $\sqrt{7}$? (1)

32.




What type of proportion is represented by the graph? (1)

33. $(a - b) \times (c + d)$

Expand the expression for all integers $a, b, c$ and $d$. (1)

34. What is the multiplicative inverse of $-4$? (1)

35. Complete: $3n^3 \times 2n^2 =$ _____ (1)

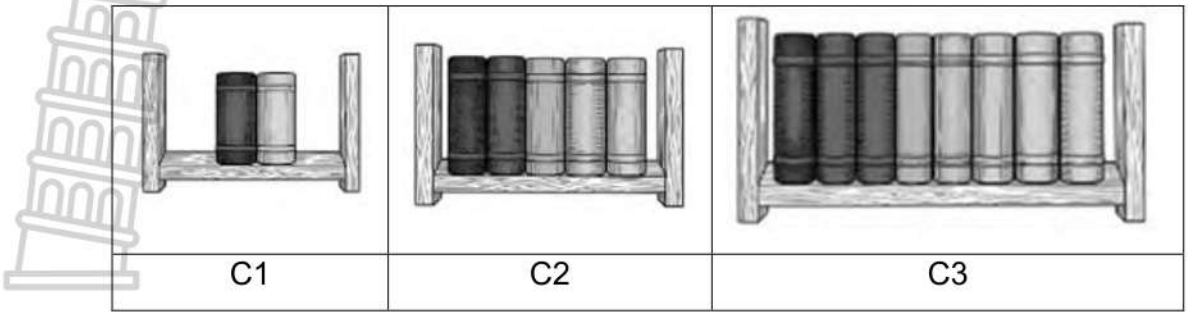
36. Write down the next term in the pattern: $-3; -8; -13;$ ___ (1)

37. Given: $7; 11; 15;$ ...

The rule for term $n$ is to multiply $n$ by _____ and add 3. (1)

Downloaded from Stanmorephysics.com

38. Black and grey books are arranged in 3 shelves C1, C2 and C3



| C1 | C2 | C3 |
|---|---|---|

To get the number of books in the next shelve you add 1 black book and ..... grey books to the previous shelve. (1)

39. The quotient of $x + 8$ and $y$ is _____. (1)

40. $5xy^3 - 2x^2y^2 + 5x^3y + 10$

How many like terms does the expression have? (1)

41. $\frac{y^4}{3} - y^3 + 5y^2 + y$

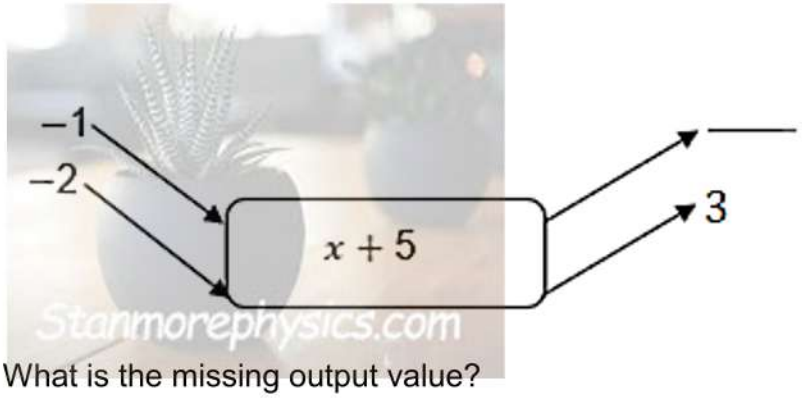
What is the numerical coefficient of the term with the highest exponent for $y$? (1)

42. What type of an algebraic expression is $8p - 4p^2q \times 3p$? (1)

43. $x^2 = 169$

What are the values of $x$? (1)

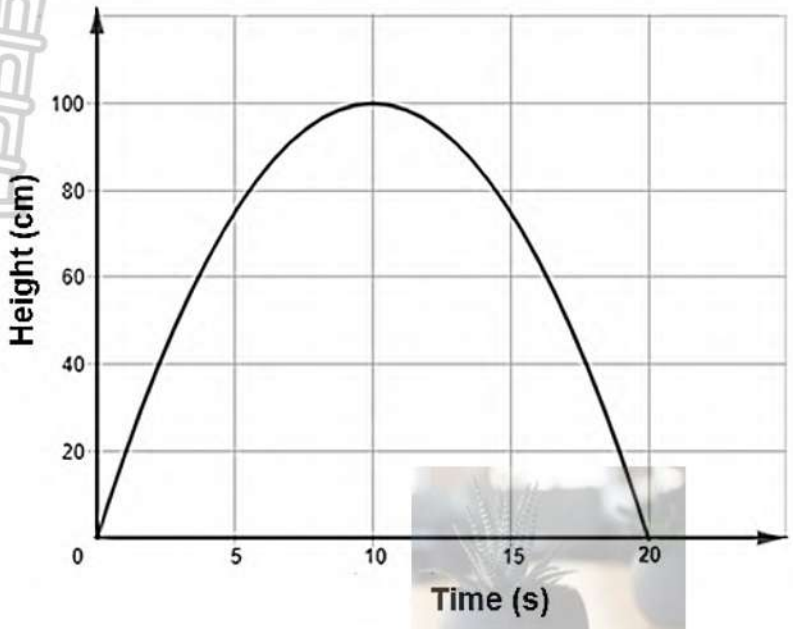
44.




What is the missing output value? (1)

Downloaded from Stanmorephysics.com

45. The graph below represents the height (cm) of a ball after it is thrown into the air.




What is the maximum height reached by the ball? (1)

Stanmorephysics.com

**SECTION B TOTAL: [15]**

Downloaded from Stanmorephysics.com

**SECTION C**

**SHOW ALL CALCULATIONS.**

46. Simplify fully: $\left(\frac{2y^{-3}}{3x^{-2}x}\right)^{-2}$ (5)

47. Factorise fully:

47.1 $3a^3b + a^2b$ (2)

47.2 $81r^4 - 1$ (4)

48. $5x^2 - 5x - 30 = 0$

Solve for $x$. (5)

49. My car travels a distance of $(x^2 - 16)$ km for every litre of petrol.

How much petrol will I need to drive $(x^2 + x - 12)$ km? (4)

Stanmorephysics.com

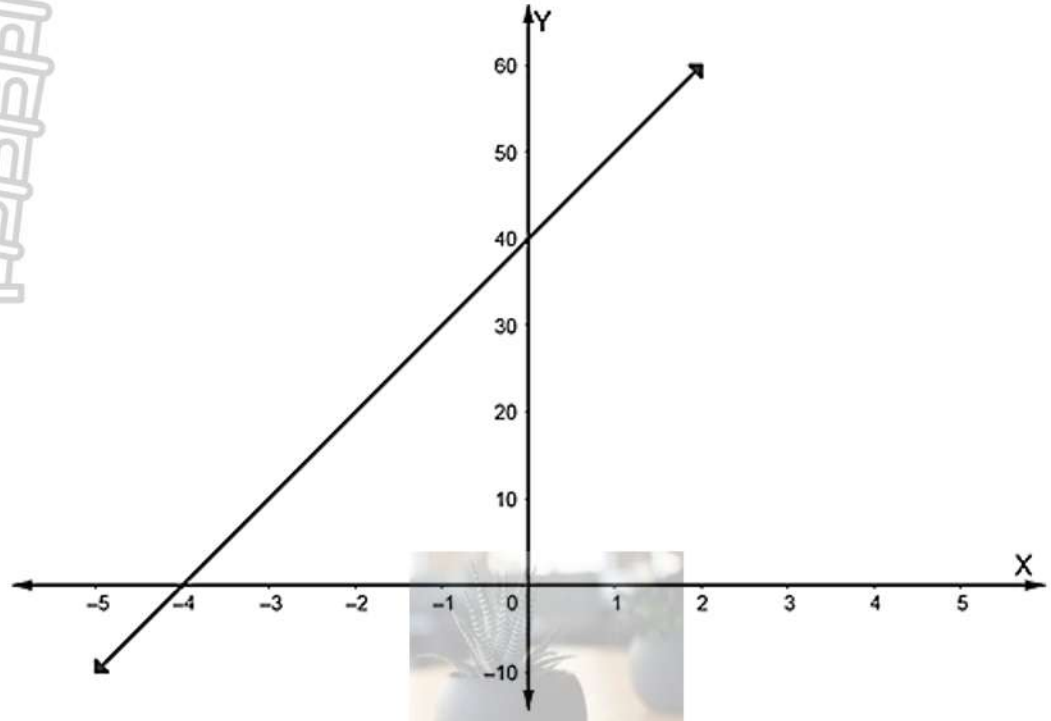
50. Luvhuno's parents invested in two different savings accounts on her 16th birthday. Her father invested R10 000 at 15% p.a. simple interest, while her mother invested the same amount at 12,5% p.a. compound interest.

Who will give Luvhuno the most money on her 21st birthday? (5)

Show all your calculations.

Downloaded from Stanmorephysics.com

51.




Determine the equation of the line. (5)

**SECTION C TOTAL: [30]**
**TOTAL: [75]**

End of paper.

Downloaded from Stanmorephysics.com

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

# MARKING GUIDELINE 2026
# MATHEMATICS PAPER 1
# GRADE 9

## SECTION A

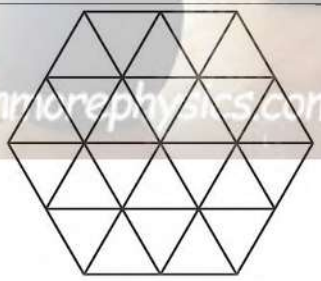
- *One mark per answer.*
- *There are no half marks.*
- *Tick* (✓) only the correct answer and underline the incorrect one.

| No. | | Expected answer | Key (✓) | Rationale |
|---|---|---|---|---|
| 1. | A | $-10$ °C | ✓ | $2 \times (-5) = -10$°C |
| 2. | B | $-3^2 = -9$ and $(-3)^2 = 9$ | ✓ | $-3^2 = -9$<br>$(-3)^2 = 9$<br>$-3^2 \neq (-3)^2$ |
| 3. | D | 45 | ✓ | Prime factors of 90.<br>2 \| 90<br>3 \| 45<br>3 \| 15<br>5 \| 5<br>1<br>Prime factors of 225.<br>3 \| 225<br>3 \| 75<br>5 \| 25<br>5 \| 5<br>1<br>$90 = 2 \times 3^2 \times 5$<br>$225 = 3^2 \times 5^2$<br>HCF $= 3^2 \times 5 = 45$<br>**OR**<br>Factors of 90:<br>1; 2; 3; 5; 6; 9; 10; 15; 18; 30; 45; 90.<br>Factors of 225:<br>1; 3; 5; 9; 15; 25; 45; 75; 225.<br>HCF = 45 |
| 4. | C | $-135$ m | ✓ | $-120 + 45 - 2(45) + 30$<br>$= -120 + 45 - 90 + 30$<br>$= -135$ |

Downloaded from Stanmorephysics.com

| No. | | Expected answer | Key (✓) | Rationale |
|---|---|---|---|---|
| 5. | D | Company A with $1{,}62 \times 10^5$ users. | ✓ | Tripling for 4 months$= 3 \times 3 \times 3 \times 3 = 3^4$<br>Doubling for 4 months $= 2 \times 2 \times 2 \times 2 = 2^4$<br>Company A $= 2 \times 10^3 \times 3^4$<br>$= 2 \times 81 \times 10^3$<br>$= 162 \times 10^3$<br>$= 1{,}62 \times 10^2 \times 10^3$<br>$= 1{,}62 \times 10^5$<br>Company B $= 5 \times 10^3 \times 2^4$<br>$= 5 \times 16 \times 10^3$<br>$= 80 \times 10^3$<br>$= 8 \times 10 \times 10^3$<br>$= 8 \times 10^4$ |
| 6. | D | 68 | ✓ | $(\sqrt{49} - 3^2)^2 \times 3 \div \sqrt[3]{27} + 4^3$<br>$= (7 - 9)^2 \times 3 \div 3 + 64$<br>$= (-2)^2 \times 3 \div 3 + 64$<br>$= 4 \times 3 \div 3 + 64$<br>$= 12 \div 3 + 64$<br>$= 4 + 64$<br>$= 68$ |
| 7. | C | $\frac{4}{y}$ | ✓ | $\frac{3x^2y^3}{(xy^2)^2} + \sqrt[3]{x^6} \times 2(x^2y)^{-1} - \frac{y^{-3} \times (x^2y^{-2})^0}{y^{-2}}$<br>$= \frac{3x^2y^3}{x^2y^4} + x^2 \times 2x^{-2}y^{-1} - \frac{y^{-3} \times 1}{y^{-2}}$<br>$= 3x^{2-2}y^{3-4} + 2x^{2-2}y^{-1} - y^{-3+2}$<br>$= 3x^0y^{-1} + 2x^0y^{-1} - y^{-1}$<br>$= 3y^{-1} + 2y^{-1} - y^{-1}$<br>$= 3y^{-1} + y^{-1}$<br>$= \frac{4}{y}$ |
| 8. | A | R12 000 | ✓ | $\frac{4\,000}{2\,000} : \frac{8\,000}{2\,000} : \frac{10\,000}{2\,000}$<br>Ratio $= 2:4:5$<br>Total parts $= 2 + 4 + 5 = 11$<br>1 part $= \frac{33\,000}{11}$<br>$= 3\,000$<br>Ratio 2: 4: 5 – Sinakho: Allan: Willie<br>Allan receives $= 4 \times 3\,000 =$ R12 000 |
| 9. | D | Add 3 to the previous term then multiply by 4. | ✓ | 2; 20; 92; …<br>$T_1 = 2$<br>$T_2 = (T_1 + 3) \times 4 = (2 + 3) \times 4 = 20$<br>$T_3 = (T_2 + 3) \times 4 = (20 + 3) \times 4 = 92$ |

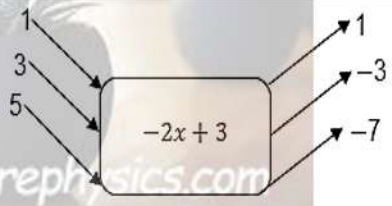
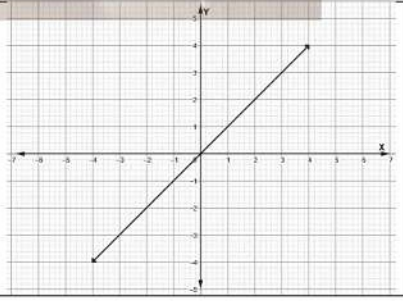
Downloaded from Stanmorephysics.com

| No. | | Expected answer | Key (✓) | Rationale |
|---|---|---|---|---|
| 10. | A |  | ✓ | One hexagon is added each time, perfectly arranged in the right direction in line with the second and fourth figures. |
| 11. | D | $T_n = 4n + 1$ | ✓ | $T_1 = 4(1) + 1 = 5$<br>$T_2 = 4(2) + 1 = 9$<br>$T_3 = 4(3) + 1 = 13$<br>$T_4 = 4(4) + 1 = 17$<br>$T_5 = 4(5) + 1 = 21$<br>$\therefore T_n = 4n + 1$ |
| 12. | A | 9 | ✓ | $900 \times \frac{10}{100} = 90$<br>Year 1 $= 900 + 90 = 990$<br>Year 2 $= 990 + 90 = 1080$<br>Year 3 $= 1080 + 90 = 1\,170$<br>900; 990; 1 080; 1 170; …<br>$d = T_2 - T_1 = 990 - 900 = 90$<br>$d = T_3 - T_2 = 1\,080 - 990 = 90$<br>$T_n = 90n + 900$<br>$1\,710 = 90n + 900$<br>$90n = 1\,710 - 900$<br>$90n = 810$<br>$\frac{90n}{90} = \frac{810}{90}$<br>$n = 9$<br>**OR**<br>Interest $= 1\,710 - 900 = 810$<br>$SI = Pin$<br>$810 = 900 \times \frac{10}{100} \times n$<br>$\frac{90n}{90} = \frac{810}{90}$<br>$n = 9$ |
| 13. | A | 24 | ✓ | <br>Counted all small equilateral triangles. |

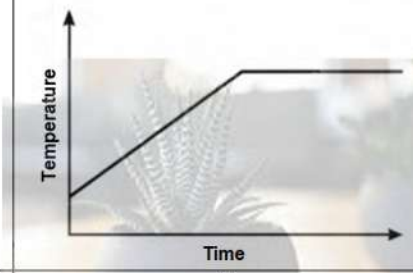
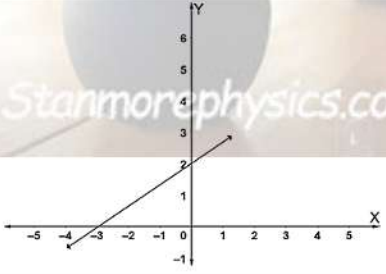
Downloaded from Stanmorephysics.com

| No. | | Expected answer | Key (✓) | Rationale |
|---|---|---|---|---|
| 14. | D | $-12x^2+x-3$ | ✓ | $\frac{12x^3-x(x-3)}{-x}$<br>$=\frac{12x^3-x^2+3x}{-x}$<br>$=\frac{12x^3}{-x}+\left(\frac{-x^2}{-x}\right)+\left(\frac{+3x}{-x}\right)$<br>$=-12x^2+x-3$<br>**OR**<br>$\frac{12x^3-x(x-3)}{-x}$<br>$=\frac{12x^3}{-x}+\frac{-x(x-3)}{-x}$<br>$=-12x^2+x-3$ |
| 15. | B | $x^2-4$ | ✓ | $(x-2)(x+2)$<br>$=(x\times x)+(x\times 2)+(-2\times x)+(-2\times 2)$<br>$=x^2+2x+(-2x)+(-4)$<br>$=x^2+2x-2x-4$<br>$=x^2-4$ |
| 16. | B | 13 | ✓ | $p^2-2pq+q^3$<br>$=(3)^2-2(3)(-2)+(-2)^3$<br>$=9-2(-6)+(-8)$<br>$=9+12-8$<br>$=13$ |
| 17. | B | $(x+3)(x+4)$ | ✓ | $x^2+7x+12$<br>$=x^2+3x+4x+12$<br>$=(x\times x)+(3\times x)+(4\times x)+(3\times 4)$<br>$=(x+3)(x+4)$ |
| 18. | B | $p(x+2)(x+1)(x^2+3x-2)$ | ✓ | $p(x^2+3x)^2-4p$<br>$=p[(x^2+3x)^2-4]$<br>$=p[x^2+3x+2][x^2+3x-2]$<br>$=p(x+2)(x+1)(x^2+3x-2)$ |
| 19. | A | 14 | ✓ | $x=14$ (by inspection)<br>**OR**<br>$x-6=8$<br>$x-6+6=8+6$<br>$x=14$ |
| 20. | C | $2x+(2x+2)=18$ | ✓ | Let the 1st even number be $2x$; the next even number will be $(2x+2)$. The sum of the two numbers is 18. |
| 21. | D | $a=6\frac{1}{2}$ and $b=5\frac{1}{3}$ | ✓ | $y=\frac{3}{2}x+5$<br>$a=\frac{3}{2}(1)+5$<br>$a=1\frac{1}{2}+5$ |

Downloaded from Stanmorephysics.com

| No. | | Expected answer | Key (✓) | Rationale |
|---|---|---|---|---|
| | | | | $a = 6\frac{1}{2}$<br>AND<br>$y = \frac{3}{2}x + 5$<br>$13 = \frac{3}{2}b + 5$<br>$13 = \frac{3}{2}b + 5$<br>$13 - 5 = \frac{3}{2}b$<br>$8 = \frac{3}{2}b$<br>$8 \times \frac{2}{3} = b$<br>$\frac{16}{3} = b$<br>$5\frac{1}{3} = b$ |
| 22. | D | Breadth = 2 m; length = 10 m | ✓ | Let the breadth of the rectangle be $x$ meters then, the length is ( $x + 8$) meters.<br>A $= l \times b$<br>$A = x(x + 8)$<br>$= x^2 + 8x$<br>But: Area $= 20$ m$^2$<br>$x^2 + 8x - 20 = 0$<br>$(x + 10)(x - 2) = 0$<br>$x = -10$ or $x = 2$<br>$x \neq -10$<br>∴ breadth = 2 m<br>length = 2 m + 8 m<br>= 10 m |
| 23. | C | $x = 2$ | ✓ | $x = 2$ (by inspection) |
| 24. | B |  | ✓ | Input values ($x$) and output values ($y$) on the flow diagram correspond with the coordinates on the graph. |
| 25. | D |  | ✓ | The $x$-values are equal to the $y$-values. |

Downloaded from Stanmorephysics.com

| No. | | Expected answer | Key (✓) | Rationale |
|---|---|---|---|---|
| 26. | B | 6 | ✓ | $d = T_2 - T_1$ $\quad d = T_3 - T_2$<br>$d = -1\frac{1}{2} - (-3)$ $\quad d = 0 - \left(-1\frac{1}{2}\right)$<br>$d = 1\frac{1}{2}$ $\quad d = 1\frac{1}{2}$<br>When $x = 2; y = 3$ (continuously adding $d$)<br>When $x = 3; y = 4\frac{1}{2}$<br>When $x = 4; y = 6$<br>When $x = 5; y = 7\frac{1}{2}$<br>When $x = 6; y = 9$<br>**OR**<br>$y$ increases by $1\frac{1}{2}$ each time $x$ increases by 1, therefore:<br>$y = \frac{3}{2}x$<br>$9 = \frac{3}{2}x$<br>$3x = 18$<br>$x = 6$<br>$\therefore m = 6$ |
| 27. | A | 7 | ✓ | $m = \frac{10 - (-4)}{3 - 1}$<br>$= \frac{14}{2}$<br>$= 7$ |
| 28. | B | 1 | ✓ | $y = \frac{5}{2}x + 1$ |
| 29. | C |  | ✓ | Temperature increases and then remains constant. |
| 30. | C |  | ✓ | Correct standard form.<br>$3y - 2x = 6$<br>$y = \frac{2}{3}x + 2$<br>$m = \frac{2}{3}$<br>$y$-intercept $= 2$ |

Downloaded from Stanmorephysics.com

| No. | Expected answer | Key (✓) | Rationale |
|---|---|---|---|
| | | | **SECTION A TOTAL: [30]** |

**SECTION B**

- *One mark per answer.*
- *There are no half marks.*
- *Tick* (✓) only the correct answer and underline the incorrect one.

| No. | Expected answer | Rationale/Clarification | Mark |
|---|---|---|---|
| 31. | Irrational number ✓**A OR** Real number ✓**A** | Answer: 1 mark | (1) |
| 32. | Inverse proportion ✓**A OR** Indirect proportion ✓**A** | Answer: 1 mark | (1) |
| 33. | $ac + ad - bc - bd$ ✓**A** | Answer: 1 mark | (1) |
| 34. | $-\frac{1}{4}$ ✓**A** | Answer: 1 mark | (1) |
| 35. | $3n^3 \times 2n^2$<br>$= (3 \times 2)(n^3 \times n^2)$<br>$= 6n^{3+2}$<br>$= 6n^5$ ✓**A** | Answer: 1 mark | (1) |
| 36. | d $= T_2 - T_1$<br>$= -8 - (-3)$<br>$= -8 + 3$<br>$= -5$<br>d $= T_3 - T_2$<br>$= -13 - (-8)$<br>$= -5$<br>$T_4 = -13 + (-5)$<br>$= -18$ ✓**A** | Answer: 1 mark | (1) |
| 37. | d $= T_2 - T_1$<br>$= 11 - 7$<br>$= 4$<br>d $= T_3 - T_2$<br>$= 15 - 11$<br>$= 4$<br>$T_n = 4n + 3$<br>4 ✓**A** **OR** four ✓**A** | Answer: 1 mark | (1) |

Downloaded from Stanmorephysics.com

| No. | Expected answer | Rationale/Clarification | Mark |
|---|---|---|---|
| 38. | C1 $= 1 + 1 = 2$<br>C2 $= 2 + 3 = 5$ $(3 - 1 = \mathbf{2})$<br>C3 $= 3 + 5 = 9$ $(5 - 3 = \mathbf{2})$<br>C4 $= 4 + 7 = 11$ $(7 - 5 = \mathbf{2})$<br>Adding 1 black book and 2 grey books.<br><br>2 ✓**A OR** two ✓**A** | Answer: 1 mark | (1) |
| 39. | $\frac{x+8}{y}$ ✓**A OR** $(x + 8) \div y$ | Answer: 1 mark | (1) |
| 40. | No like terms ✓**A OR** zero like terms ✓**A** | Answer: 1 mark | (1) |
| 41. | $\frac{1}{3}$ ✓**A** | Answer: 1 mark | (1) |
| 42. | Binomial ✓**A** | Answer: 1 mark | (1) |
| 43. | $x^2 = 169$<br>$x = \pm\sqrt{169}$<br>$x = \pm 13$ ✓**A**<br>**OR**<br>$x^2 = 169$<br>$x^2 - 169 = 0$<br>$(x + 13)(x - 13) = 0$<br>$x = -13$ or $x = 13$ ✓**A** | Answer: 1 mark<br>**OR**<br>Answer: 1 mark | (1) |
| 44. | Output value $= -1 + 5$<br>$= 4$ ✓**A** | Answer: 1 mark | (1) |
| 45. | 100 cm ✓**A** | Answer: 1 mark | (1) |
| | | | **SECTION B TOTAL: [15]** |

Downloaded from Stanmorephysics.com

**SECTION C**

- Do not penalise the learner for the same mistake twice.
- *There are no half marks.*
- Underline errors committed by learners do not place a cross (X).

| No. | Expected answer | Rational/Clarification | Mark |
|---|---|---|---|
| 46. | $\left(\frac{2y^{-3}}{3x^{-2}x}\right)^{-2}$<br>$=\left(\frac{2x^2}{3xy^3}\right)^{-2}$ ✓M<br>$=\left(\frac{2x}{3y^3}\right)^{-2}$ ✓M<br>$=\left(\frac{3y^3}{2x}\right)^{2}$ ✓M<br>$=\frac{3^2y^6}{2^2x^2}$ ✓M<br>$=\frac{9y^6}{4x^2}$ ✓CA<br><br>**OR**<br><br>$\left(\frac{2y^{-3}}{3x^{-2}x}\right)^{-2}$<br>$=\left(\frac{2y^{-3}}{3x^{-2+1}}\right)^{-2}$<br>$=\left(\frac{2y^{-3}}{3x^{-1}}\right)^{-2}$ ✓M<br>$=\left(\frac{2x^1}{3y^3}\right)^{-2}$ ✓CA<br>$=\frac{1}{\frac{4x^2}{9y^6}}$ ✓CA<br>$=\frac{9y^6}{4x^2}$ ✓✓CA<br>**Accept any correct method.** | $\left(\frac{2x^2}{3xy^3}\right)^{-2}$ :1 mark<br>$\left(\frac{2x}{3y^3}\right)^{-2}$ :1 mark<br>$\left(\frac{3y^3}{2x}\right)^{2}$ :1 mark<br>$\frac{3^2y^6}{2^2x^2}$ :1 mark<br>$\frac{9y^6}{4x^2}$ :1 mark<br><br>**OR**<br><br>$x^{-1}$: 1 mark<br>$\left(\frac{2x^1}{3y^3}\right)^{-2}$ : 1 mark<br>$\frac{1}{\frac{4x^2}{9y^6}}$: 1 mark<br>$\frac{9y^6}{4x^2}$: 2 marks | (5) |
| 47. | 47.1 $3a^3b + a^2b$<br>$= a^2b(3a+1)$ ✓✓A | $a^2b$: 1 mark<br>$(3a+1)$: 1 mark | (2) |

Downloaded from Stanmorephysics.com

| No. | Expected answer | Rational/Clarification | Mark |
|---|---|---|---|
| 47.2 | $81r^4 - 1$<br>$= (9r^2 + 1)(9r^2 - 1)$ ✓✓**M**<br>$= (9r^2 + 1)(3r + 1)(3r - 1)$ ✓✓**CA** | $(9r^2 + 1)$ : 1 mark<br>$(9r^2 - 1)$: 1 mark<br>$(3r + 1)$: 1 mark<br>$(3r - 1)$: 1 mark | (4) |
| 48. | $5x^2 - 5x - 30 = 0$<br>$5(x^2 - x - 6) = 0$ ✓**M**<br>$5(x - 3)(x + 2) = 0$ ✓**M** ✓**M**<br>$x = 3$ or $x = -2$ ✓✓**CA**<br><br>**OR**<br><br>$5x^2 - 5x - 30 = 0$<br>$(5x - 15)(x + 2) = 0$ ✓**M**<br>$5(x - 3)(x + 2) = 0$ ✓**M** ✓**M** ✓**M**<br>$x = 3$ or $x = -2$ ✓**CA** | Common factor/Divide by 5: 1 mark<br>$(x - 3)$: 1 mark<br>$(x + 2)$:1 mark<br>$x = 3$: 1 mark<br>$x = -2$: 1 mark<br><br>**OR**<br>$(5x - 15)(x + 2)$: 1 mark<br>5: 1 mark<br>$(x - 3)$: 1 mark<br>$(x + 2)$: 1 mark<br>$x = 3$ or $x = -2$: 1 mark | (5) |
| 49. | $\frac{x^2 + x - 12}{x^2 - 16}$ ✓**M**<br>$= \frac{(x + 4)(x - 3)}{(x + 4)(x - 4)}$ ✓✓**M**<br>$= \frac{x - 3}{x - 4}$ litres ✓**CA** | $\frac{x^2+x-12}{x^2-16}$: 1 mark<br>$(x + 4)(x - 3)$: 1 mark<br>$(x + 4)(x - 4)$: 1 mark<br>$\frac{x-3}{x-4}$ litres: 1 mark<br>No penalty for omitting unit | (4) |
| 50. | Father's investment:<br>A = $P(1 + in)$<br>A = R10 000$(1 + \frac{15}{100} \times 5)$✓**M**<br>A = R17 500✓**A**<br>Mother's investment:<br>A = $P(1 + i)^n$<br>A = R10 000$\left(1 + \frac{12,5}{100}\right)^5$ ✓**M**<br>A = R18 020,32✓**CA**<br>Luvhuno's mother will be the one to give Luvhuno more money. ✓**CA**<br>**No marks for conclusion without any calculations.** | Correct substitution: 1 mark<br>Answer: 1 mark<br><br>Correct substitution: 1 mark<br>Answer: 1 mark<br><br>Conclusion: 1 mark | (5) |

Downloaded from Stanmorephysics.com

| No. | Expected answer | Rational/Clarification | Mark |
|---|---|---|---|
| 51. | Gradient<br>$m = \frac{y_2 - y_1}{x_2 - x_1}$ ✓**M**<br>$m = \frac{0 - 40}{-4 - 0}$ ✓**M**<br>$= 10$ ✓ **CA**<br>$y = mx + c$<br>$y = 10x + 40$ ✓✓**CA**<br><br>**OR**<br><br>$y = mx + 40$ ✓**M**<br>$0 = m(-4) + 40$ ✓**M**<br>$0 = -4m + 40$<br>$4m = 40$<br>$m = 10$ ✓ **CA**<br>$y = 10x + 40$ ✓✓**CA**<br>**Full marks for answer only**<br>**Accept any correct solution.** | Gradient formula: 1 mark<br><br>Substitution: 1 mark<br>Answer: 1 mark<br><br>$10x$ : 1 mark<br>$40$ : 1 mark<br><br>**OR**<br><br>Substitution of $y$-intercept: 1 mark<br>Substitution of $(-4; 0)$: 1 mark<br><br>Answer: 1 mark<br>$10x$ : 1 mark<br>$40$ : 1 mark | (5) |
| | | | **SECTION C TOTAL: [30]** |
| | | | **TOTAL: [75]** |