



STANMOREPHYSICS

GRADE 9 • GEC-STYLE PRACTICE

MATHEMATICS

PAPER 2 - Geometry and Measurement

Maximum marks	75
Writing time	2 hours
Reading time	15 minutes (additional)
Practice edition	2026 - Set A

Learner: _____ Class: _____



ORIGINAL PRACTICE RESOURCE

Mock South African Grade 9 GEC assessment. Not affiliated with the Department of Basic Education.

INSTRUCTIONS TO THE LEARNER

1. Allow 15 minutes to read the assessment before starting the timed section.
2. Read all questions carefully and answer every question.
3. Use the separate Stanmorephysics answer booklet for your answers.
4. Section A consists of 45 multiple-choice questions. Choose ONE option (A, B, C or D) for each question.
5. Section B is worth 30 marks. Show full calculations and give reasons or units where required.
6. You may use a non-programmable scientific calculator unless the question states otherwise.
7. Diagrams are schematic and are not necessarily drawn to scale.



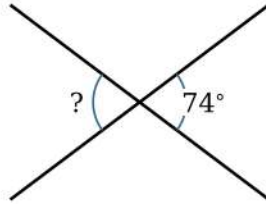
The assessment begins on the next page.

Do not turn the page until instructed to do so.

SECTION A - MULTIPLE CHOICE

Questions 1–45. Each question carries ONE mark. Write only the letter of your chosen answer.

1. Two intersecting straight lines form an angle of 74° . What is its vertically opposite angle?



- A 16°
- B 148°
- C 74°
- D 106°

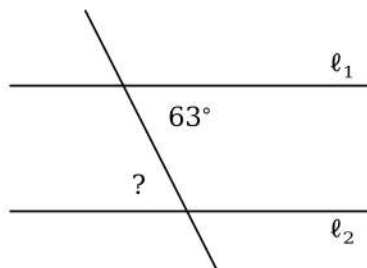
(1)

2. Angles on a straight line are $3x$ and $2x$. What is x ?

- A 36°
- B 90°
- C 18°
- D 30°

(1)

3. Two parallel lines are cut by a transversal. An alternate interior angle is 63° . Find its partner.



- A 27°
- B 126°
- C 63°
- D 117°



(1)

4. Two angles sum to 90° . One is 38° . Find the other.

- A 52°
- B 142°
- C 62°
- D 42°

(1)

5. A triangle has interior angles 41° , 72° and t° . Find t .

- A 57°
- B 77°
- C 67°
- D 113°

(1)

6. An exterior angle of a triangle is 122° . One remote interior angle is 58° . Find the other.

- A 54°
- B 122°
- C 64°
- D 58°

(1)

7. Which triangle has exactly two equal sides?

- A Equilateral
- B Right-angled only
- C Scalene
- D Isosceles

(1)

8. A right-angled triangle has one acute angle of 29° . Find the other acute angle.

- A 51°
- B 151°
- C 29°
- D 61°

(1)

9. Which property is always true for a parallelogram?

- A Diagonals are perpendicular
- B All angles are 90°
- C Opposite sides are parallel
- D All sides are equal

(1)

10. A rhombus has side length 9 cm. Find its perimeter.

- A** 81 cm
- B** 36 cm
- C** 18 cm
- D** 27 cm

(1)

11. A quadrilateral has exactly one pair of opposite sides parallel. What is its name in South African school geometry?

- A** Square
- B** Rhombus
- C** Trapezium
- D** Kite

(1)

12. The exterior angle of a regular polygon is 45° . How many sides does it have?

- A** 9
- B** 6
- C** 10
- D** 8

(1)

13. A triangle is enlarged with scale factor 2.5. One original side is 6 cm. Find the image side.

- A** 2,4 cm
- B** 15 cm
- C** 8,5 cm
- D** 30 cm

(1)

14. Two triangles are congruent. If a corresponding side is 11 cm, what is its matching length?

- A** 22 cm
- B** 5,5 cm
- C** 121 cm
- D** 11 cm

(1)



15. A parallelogram has one interior angle of 112° . What is an adjacent interior angle?
- A 68°
 - B 248°
 - C 56°
 - D 112°
- (1)
16. What is the sum of the interior angles of a hexagon?
- A 540°
 - B 900°
 - C 600°
 - D 720°
- (1)
17. Which set of lengths CAN form a triangle?
- A 6 cm, 7 cm, 12 cm
 - B 2 cm, 3 cm, 6 cm
 - C 1 cm, 4 cm, 6 cm
 - D 4 cm, 5 cm, 10 cm
- (1)
18. The point A(-4; 3) is reflected in the x-axis. What is A'?
- A (3; -4)
 - B (4; 3)
 - C (4; -3)
 - D (-4; -3)
- (1)
19. Translate B(2; -1) by 5 units left and 3 units up.
- A (5; 3)
 - B (-3; 2)
 - C (7; 2)
 - D (-3; -4)
- (1)
20. A(4; -2) is rotated 180° about the origin. What is its image?
- A (-2; 4)
 - B (4; 2)
 - C (2; -4)
 - D (-4; 2)
- (1)

21. The reflection of $(5; -1)$ in the y -axis is ...

- A $(-5; 1)$
- B $(5; 1)$
- C $(1; 5)$
- D $(-5; -1)$

(1)

22. Which transformation preserves both size and orientation?

- A Enlargement by factor 3
- B Reflection followed by enlargement by 2
- C Reflection
- D Translation

(1)

23. Under a reflection in the line $y = x$, $(-3; 6)$ maps to ...

- A $(-6; 3)$
- B $(6; -3)$
- C $(3; -6)$
- D $(-3; -6)$

(1)

24. A rectangle of area 12 cm^2 is enlarged by scale factor 3. What is the image area?

- A 72 cm^2
- B 36 cm^2
- C 144 cm^2
- D 108 cm^2

(1)

25. What is the image of $C(1; 4)$ under a clockwise 90° rotation around the origin?

- A $(-4; 1)$
- B $(4; -1)$
- C $(-1; -4)$
- D $(4; 1)$

(1)

26. Find the area of a triangle with base 14 cm and perpendicular height 9 cm.

- A 63 cm^2
- B 126 cm^2
- C 252 cm^2
- D 23 cm^2

(1)

27. A rectangle measures 8 m by 5 m. Find its perimeter.

- A 26 m
- B 13 m
- C 80 m
- D 40 m

(1)

28. A circle has radius 7 cm. Using $\pi = \frac{22}{7}$, find its circumference.

- A 154 cm
- B 22 cm
- C 49 cm
- D 44 cm

(1)

29. Calculate the area of a circle with radius 3 cm, in terms of π .

- A $3\pi\text{cm}^2$
- B $18\pi\text{cm}^2$
- C $9\pi\text{cm}^2$
- D $6\pi\text{cm}^2$

(1)

30. A parallelogram has a base of 13 cm and perpendicular height 4 cm. Find its area.

- A 17cm^2
- B 52cm^2
- C 104cm^2
- D 26cm^2

(1)

31. The diagonals of a kite are 10 cm and 16 cm. Its area is ...

- A 160cm^2
- B 40cm^2
- C 26cm^2
- D 80cm^2

(1)

32. A trapezium has parallel sides 8 cm and 14 cm and height 6 cm. Its area is ...

- A 48cm^2
- B 132cm^2
- C 66cm^2
- D 60cm^2

(1)

33. A square has an area of 81 m^2 . Find its side length.

- A 40,5 m
- B 9 m
- C 18 m
- D 162 m

(1)

34. What is 2,4 metres in centimetres?

- A 2 400 cm
- B 240 cm
- C 24 cm
- D 0,024 cm

(1)

35. A cube has side length 5 cm. Its volume is ...

- A 75 cm^3
- B 15 cm^3
- C 125 cm^3
- D 25 cm^3

(1)

36. A cuboid measures 4 cm by 6 cm by 10 cm. Find its volume.

- A 240 cm^3
- B 400 cm^3
- C 120 cm^3
- D 20 cm^3

(1)

37. How many litres are in 3 500 mL?

- A 0,35 L
- B 3,5 L
- C 350 L
- D 35 L

(1)

38. What is the surface area of a cube with side 4 cm?

- A 16 cm^2
- B 64 cm^2
- C 256 cm^2
- D 96 cm^2

(1)

39. A cylinder has radius 2 cm and height 10 cm. Its volume in terms of π is ...

- A $80\pi\text{cm}^3$
- B $20\pi\text{cm}^3$
- C $40\pi\text{cm}^3$
- D $120\pi\text{cm}^3$

(1)

40. Which expression gives the total surface area of a closed cylinder?

- A πrh
- B $2\pi r^2 + 2\pi rh$
- C $2\pi rh$ only
- D $\pi r^2 h$

(1)

41. A tank measures 2 m by 1 m by 1,5 m. How many litres can it hold?

- A 300 L
- B 3 000 L
- C 30 000 L
- D 3 L

(1)

42. An open-topped square container has base side 3 m and height 2 m. What is the area to paint on the outside, excluding the top?

- A 9m^2
- B 24m^2
- C 21m^2
- D 33m^2

(1)

43. A cube with volume 216cm^3 has edge length ...

- A 9 cm
- B 12 cm
- C 6 cm
- D 18 cm

(1)

44. The area of a sector is one quarter of a circle with radius 8 cm. Express the answer in terms of π .

- A $32\pi\text{cm}^2$
- B $64\pi\text{cm}^2$
- C $8\pi\text{cm}^2$
- D $16\pi\text{cm}^2$

(1)

45. A 10 m ladder reaches a wall 8 m above the ground. How far is its foot from the wall?

- A 2 m
- B 4 m
- C 6 m
- D 18 m

(1)

SECTION A TOTAL [45]



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SECTION B - WRITTEN RESPONSES

Answer all questions. Show calculations, reasons and units where required.

46. Triangle PQR has vertices $P(1; 1)$, $Q(4; 1)$ and $R(2; 4)$. Translate each vertex 3 units left and 2 units down. State the image coordinates and plot them on the grid in the answer booklet.

(3)

47. Two angles on a straight line are $(4x + 20)^\circ$ and $(2x + 10)^\circ$. Determine x and then the larger angle.

(4)

48. A triangle has side lengths 7 cm, 24 cm and 25 cm. Show with a calculation whether it is right-angled.

(3)

49. In triangle ABC, $\angle A = 2x + 10^\circ$, $\angle B = x + 15^\circ$ and $\angle C = 5x - 5^\circ$. Find x and all three angles.

(5)

50. A right prism has a triangular end of base 6 cm and height 4 cm. Its length is 10 cm. Calculate its volume and give units.

(5)

51. A rectangular classroom floor measures 8 m by 6 m. Square tiles are 40 cm by 40 cm. How many whole tiles are needed if there are no gaps and no wastage?

(4)

52. A circular rainwater pond has a radius of 3,5 m. A 0,5 m wide walking path is built around the outside. Calculate the area of the path, using $\pi = \frac{22}{7}$. Give the final answer in m^2 .

(6)

SECTION B TOTAL [30]

ASSESSMENT TOTAL [75]



END OF PRACTICE PAPER



STANMOREPHYSICS

GRADE 9 • GEC-STYLE PRACTICE

MATHEMATICS

LEARNER ANSWER BOOKLET

Maximum marks	75
Writing time	Use with matching question paper
Reading time	15 minutes (additional)
Practice edition	2026

Learner: _____ Class: _____



ORIGINAL PRACTICE RESOURCE

Mock South African Grade 9 GEC assessment. Not affiliated with the Department of Basic Education.

ANSWER BOOKLET - INSTRUCTIONS

Complete the details on the cover and write the letter of each multiple-choice answer in Section A. Show calculations and reasons in Section B.

Write neatly. If you change an answer, cross out the first letter and write the new letter clearly. **SECTION A - ANSWER GRID**

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

SECTION A TOTAL [45]



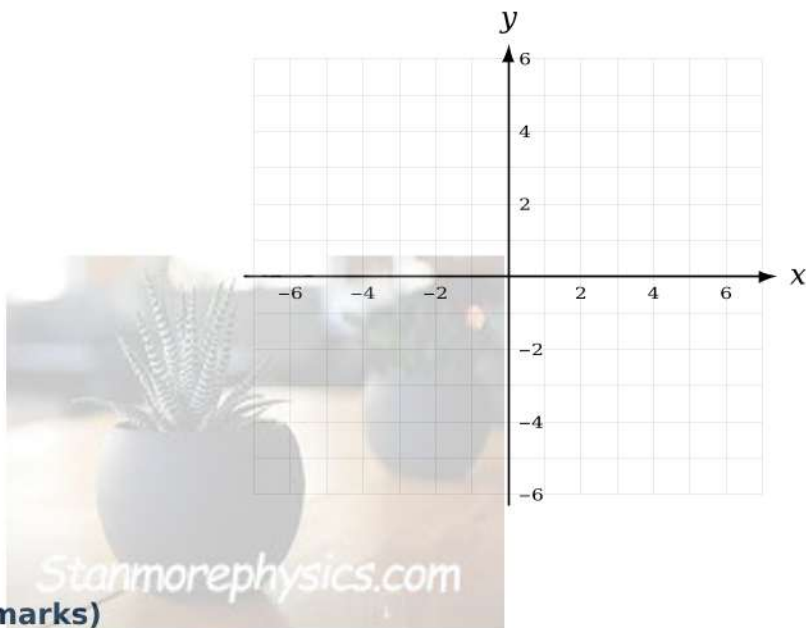
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SECTION B - WORKING AND RESPONSES

Show your steps and answers in the spaces provided. Attach extra paper if needed.

46. (3 marks)

State the coordinates and plot the required points or line on the grid.



47. (4 marks)



48. (3 marks)



49. (5 marks)



50. (5 marks)



51. (4 marks)



52. (6 marks)



SECTION B TOTAL [30]
TOTAL [75]

END OF ANSWER BOOKLET





STANMOREPHYSICS

GRADE 9 • GEC-STYLE PRACTICE

MATHEMATICS

MARKING GUIDELINE / MEMORANDUM

Maximum marks	75
Writing time	Teacher use and self-marking
Reading time	15 minutes (additional)
Practice edition	2026

Learner: _____ Class: _____



ORIGINAL PRACTICE RESOURCE

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SECTION A - ANSWER KEY AND CLARIFICATION

Award 1 mark for each correct option. No half marks in Section A.

No.	Key	Correct response	Clarification
1	C	74°	Vertically opposite angles are equal.
2	A	36°	$3x + 2x = 180^\circ$, hence $x = 36^\circ$.
3	C	63°	Alternate interior angles are equal for parallel lines.
4	A	52°	$90^\circ - 38^\circ = 52^\circ$.
5	C	67°	$180^\circ - 41^\circ - 72^\circ = 67^\circ$.
6	C	64°	Exterior angle = sum of opposite interior angles: $122^\circ - 58^\circ = 64^\circ$.
7	D	Isosceles	An isosceles triangle has at least two equal sides; "exactly" excludes equilateral.
8	D	61°	The acute angles total 90° ; $90^\circ - 29^\circ = 61^\circ$.
9	C	Opposite sides are parallel	Both pairs of opposite sides are parallel.
10	B	36 cm	All four sides are 9 cm : $4 \times 9 = 36$ cm.
11	C	Trapezium	A trapezium has one pair of opposite sides parallel.
12	D	8	$360^\circ \div 45^\circ = 8$.
13	B	15 cm	$6 \times 2,5 = 15$ cm.
14	D	11 cm	Congruence preserves corresponding lengths.
15	A	68°	Adjacent angles in a parallelogram add to 180° .
16	D	720°	$(6 - 2) \times 180^\circ = 720^\circ$.
17	A	6 cm, 7 cm, 12 cm	The sum of any two shorter sides must exceed the longest; $6 + 7 > 12$.
18	D	(-4; -3)	Reflection in x-axis negates y.
19	B	(-3; 2)	New coordinates $(2 - 5; -1 + 3) = (-3; 2)$.
20	D	(-4; 2)	180° rotation maps (x;y) to (-x;-y).
21	D	(-5; -1)	Sign of x changes, y does not.
22	D	Translation	A translation slides a shape without turning/flipping.
23	B	(6; -3)	Swap the x- and y-coordinates.
24	D	108 cm^2	Area scale factor is $3^2 = 9$; $12 \times 9 = 108$.
25	B	(4; -1)	Clockwise quarter turn: (x;y) $\mapsto$ (y;-x).
26	A	63 cm^2	$\frac{1}{2} \times 14 \times 9 = 63 \text{ cm}^2$.
27	A	26 m	$2(8 + 5) = 26$ m.
28	D	44 cm	$C = 2\pi r = 44$ cm.
29	C	$9\pi \text{ cm}^2$	$A = \pi r^2 = 9\pi \text{ cm}^2$.
30	B	52 cm^2	$A = \text{base} \times \text{height} = 52 \text{ cm}^2$.
31	D	80 cm^2	$A = \frac{1}{2} d_1 d_2 = 80 \text{ cm}^2$.
32	C	66 cm^2	$\frac{1}{2} (8 + 14) \times 6 = 66 \text{ cm}^2$.
33	B	9 m	$\sqrt{81} = 9$ m.
34	B	240 cm	$2,4 \times 100 = 240$ cm.
35	C	125 cm^3	$V = 5^3 = 125 \text{ cm}^3$.
36	A	240 cm^3	$V = lbh = 4 \times 6 \times 10 = 240 \text{ cm}^3$.
37	B	3,5 L	1 000 mL = 1 L; 3 500 mL = 3,5 L.
38	D	96 cm^2	$6 \times 4^2 = 96 \text{ cm}^2$.
39	C	$40\pi \text{ cm}^3$	$V = \pi r^2 h = \pi (4)(10) = 40\pi \text{ cm}^3$.
40	B	$2\pi r^2 + 2\pi rh$	Two circular ends + curved surface.
41	B	3 000 L	Volume = 3 m^3 ; $1 \text{ m}^3 = 1\,000 \text{ L}$.
42	D	33 m^2	Base $3 \times 3 = 9$ plus 4 walls at 3×2 each = 24; total 33 m^2 .
43	C	6 cm	$6^3 = 216$.
44	D	$16\pi \text{ cm}^2$	$\frac{1}{4} \times \pi \times 8^2 = 16\pi \text{ cm}^2$.
45	C	6 m	By Pythagoras, $\sqrt{10^2 - 8^2} = 6$ m.

SECTION A TOTAL [45]

SECTION B – MARKING GUIDE

Bracketed allocations [1], [2], etc. identify credit for each step. Accept equivalent mathematically or scientifically correct answers. Award appropriate method and follow-through marks.

46. Triangle PQR has vertices $P(1; 1)$, $Q(4; 1)$ and $R(2; 4)$. Translate each vertex 3 units left and 2 units down. State the image coordinates and plot them on the grid in the answer booklet.

Expected answer and allocation (3 marks): $P'(-2; -1)$ correctly stated and plotted [1]; $Q'(1; -1)$ correctly stated and plotted [1]; $R'(-1; 2)$ correctly stated and plotted [1].

47. Two angles on a straight line are $(4x + 20)^\circ$ and $(2x + 10)^\circ$. Determine x and then the larger angle.

Expected answer and allocation (4 marks): $(4x + 20) + (2x + 10) = 180$ [1]; $6x + 30 = 180$ [1]; $x = 25$ [1]; larger angle $= 4(25) + 20 = 120^\circ$ [1].

48. A triangle has side lengths 7 cm, 24 cm and 25 cm. Show with a calculation whether it is right-angled.

Expected answer and allocation (3 marks): $7^2 + 24^2 = 49 + 576 = 625$ [1]; $25^2 = 625$ [1]; equal, hence right-angled [1].

49. In triangle ABC, $\angle A = 2x + 10^\circ$, $\angle B = x + 15^\circ$ and $\angle C = 5x - 5^\circ$. Find x and all three angles.

Expected answer and allocation (5 marks): $(2x + 10) + (x + 15) + (5x - 5) = 180$ [1]; $8x + 20 = 180$ [1]; $x = 20$ [1]; $A = 50^\circ$, $B = 35^\circ$ [1]; $C = 95^\circ$ [1].

50. A right prism has a triangular end of base 6 cm and height 4 cm. Its length is 10 cm. Calculate its volume and give units.

Expected answer and allocation (5 marks): Triangle area $= \frac{1}{2} \times 6 \times 4$ [1] $= 12 \text{ cm}^2$ [1]; $V =$ cross-sectional area $\times$ length [1]; $= 12 \times 10$ [1] $= 120 \text{ cm}^3$ [1].

51. A rectangular classroom floor measures 8 m by 6 m. Square tiles are 40 cm by 40 cm. How many whole tiles are needed if there are no gaps and no wastage?

Expected answer and allocation (4 marks): Floor area $= 48 \text{ m}^2$ [1]; tile length $= 0,4 \text{ m}$ [1]; tile area $= 0,16 \text{ m}^2$ [1]; $48 \div 0,16 = 300$ tiles [1].

52. A circular rainwater pond has a radius of 3,5 m. A 0,5 m wide walking path is built around the outside. Calculate the area of the path, using $\pi = \frac{22}{7}$. Give the final answer in m^2 .

Expected answer and allocation (6 marks): Outer radius $= 4 \text{ m}$ [1]; outer area $= \pi(4^2)$ [1]; inner area $= \pi(3,5^2)$ [1]; path area $= \pi(16 - 12,25)$ [1]; $= (\frac{22}{7})(3,75)$ [1]; $= 11,79 \text{ m}^2$ (2 dp) [1].

SECTION B TOTAL [30]

GRAND TOTAL [75]