



EDUSAMBAM ASSESSMENT SERIES

Algebra (O-Level Focus) & Graphs / Pie Charts

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Candidate Name:

Roll No.:

Class / Grade:

Date:

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Test Centre:

Subject

Mathematics (Maths)

Topic

Algebra (O-Level Focus) & Graphs / Pie Charts

Total Marks

100

Total Questions

45

Time Allowed

1 Hour (60 minutes)

Version

A

GENERAL INSTRUCTIONS

1. Read each question carefully before answering.
2. For Section A and Section B, mark one answer only.
3. For Sections C and E, write your answer clearly in the space provided.
4. For Section D, write the correct letter from Column B against each item in Column A.
5. Do not use correction fluid. Keep all answers clear and legible.
6. This worksheet is prepared from the EDUSAMBAM practice assessment supplied for this paper.

PAPER PATTERN

Section	Questions	Marks Each	Total
Section A — Multiple Choice	15	2	30
Section B — True / False	10	2	20
Section C — Fill in the Blank	10	2	20
Section D — Column Matching	5 pairs	2	10
Section E — Short Answer	5	4	20
Total	45	—	100

Section A — Multiple Choice

30 marks

1. Expand: $(x + 2)(x + 3)$

A. $x^2 + 5x + 6$

C. $x^2 + 5x + 5$

Answer: ☐A ☐B ☐C ☐D

B. $x^2 + 6x + 5$

D. $2x + 5$

Basic • 2 pts

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

A. $(x+3)(x+4)$

C. $(x+1)(x+12)$

Answer: ☐A ☐B ☐C ☐D

B. $(x+2)(x+6)$

D. $(x+6)(x+6)$

Basic • 2 pts

3. Factorise: $x^2 - 9$

A. $(x-3)(x+3)$

C. $(x-3)^2$

Answer: ☐A ☐B ☐C ☐D

B. $(x-9)(x+1)$

D. $(x+9)(x-1)$

Basic • 2 pts

4. Solve the inequality: $x + 3 > 8$

A. $x > 5$

C. $x < 5$

Answer: ☐A ☐B ☐C ☐D

B. $x > 11$

D. $x > 3$

Basic • 2 pts

5. Simplify: $4x^2 \div 2x$

A. $2x$

C. $6x$

Answer: ☐A ☐B ☐C ☐D

B. $2x^2$

D. $8x$

Intermediate • 2 pts

6. If $y = 2x + 1$, what is y when $x = 3$?

A. 5

B. 6

C. 7

D. 9

Answer: ☐A ☐B ☐C ☐D

7. Which expression represents 'a number doubled, then increased by 5'?

A. $2x + 5$

B. $x + 5 \times 2$

C. $5x + 2$

D. $2(x + 5)$

Answer: ☐A ☐B ☐C ☐D

8. Solve: $2x - 3 = x + 5$

A. $x = 2$

B. $x = 8$

C. $x = -8$

D. $x = 5$

Answer: ☐A ☐B ☐C ☐D

9. A pie chart is best used to show:

A. Change over time

B. Parts of a whole as percentages

C. Exact individual values only

D. Correlation between two variables

Answer: ☐A ☐B ☐C ☐D

10. A full pie chart represents a total of:

A. 100 degrees

B. 360 degrees

C. 180 degrees

D. 100 marks

Answer: ☐A ☐B ☐C ☐D

11. If a pie chart slice takes up 25% of the circle, how many degrees is that?

A. 25°

B. 90°

C. 100°

D. 360°

Answer: ☐A ☐B ☐C ☐D

12. A line graph is most useful for showing:

A. Categories with no order

B. Trends or change over time

C. Parts of a whole

D. A single value

Answer: ☐A ☐B ☐C ☐D

13. On a bar graph, the height (or length) of each bar represents:

A. The category name

B. The value or frequency

C. The color

D. The x-axis label

Answer: ☐A ☐B ☐C ☐D

14. The horizontal axis of a graph is usually called the:

A. y-axis

B. x-axis

C. z-axis

D. origin

Answer: ☐A ☐B ☐C ☐D

15. In a class of 40 students, 10 chose football as their favourite sport. What percentage is this?

A. 10%

B. 20%

C. 25%

D. 40%

Answer: ☐A ☐B ☐C ☐D

Section B — True / False

20 marks

16. Factorising is the reverse process of expanding brackets.

A. True ☐

B. False ☐

Basic • 2 pts

17. $(x + 2)(x + 2)$ is the same as $x^2 + 4x + 4$.

A. True ☐

B. False ☐

Basic • 2 pts

18. The inequality $x > 5$ means x can equal exactly 5.

A. True ☐

B. False ☐

Basic • 2 pts

19. $x^2 - 4$ factorises to $(x-2)(x+2)$.

A. True ☐

B. False ☐

Basic • 2 pts

20. In algebra, 'simplify' and 'solve' mean exactly the same thing.

A. True ☐

B. False ☐

Intermediate • 2 pts

21. A pie chart always adds up to 360 degrees in total.

A. True ☐

B. False ☐

Intermediate • 2 pts

22. A larger slice of a pie chart always represents a larger percentage.
A. True ☐ B. False ☐

23. Bar graphs and line graphs use the same type of axes.
A. True ☐ B. False ☐

24. A line graph is the best choice for showing how temperature changes over a week.
A. True ☐ B. False ☐

25. Percentages in a pie chart must always add up to 100%.
A. True ☐ B. False ☐

Intermediate • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Section C — Fill in the Blank

20 marks

26. Breaking an expression like $x^2 + 5x + 6$ into $(x+2)(x+3)$ is called _____.
Answer: _____

27. The opposite process of factorising is called _____.
Answer: _____

28. A mathematical sentence using $<$, $>$, $\leq$ or $\geq$ instead of an equals sign is called an _____.
Answer: _____

29. $(x + 5)(x + 5)$ can be written more shortly as $(x + 5)$ _____.
Answer: _____

30. $x^2 - 16$ factorises to $(x - 4)(x + \text{_____})$.
Answer: _____

31. A chart made of a full circle divided into slices is called a _____ chart.
Answer: _____

32. The vertical axis of a graph is usually called the _____-axis.
Answer: _____

33. A graph that uses connected points to show change over time is called a _____ graph.
Answer: _____

34. If a pie chart slice is 50% of the total, it takes up _____ degrees.
Answer: _____

35. A graph with separate rectangular columns is called a _____ graph or chart.
Answer: _____

Basic • 2 pts

Basic • 2 pts

Basic • 2 pts

Basic • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Intermediate • 2 pts

Section D — Column Matching

10 marks

36-40. Match each term to its correct definition.

Column A	Answer	Column B
Factorise	_____	A. Multiply out brackets in an expression
Expand	_____	B. A statement comparing two expressions using $<$, $>$, $\leq$ or $\geq$
Inequality	_____	C. A graph showing change or trend over time using connected points
Pie chart	_____	D. Write an expression as a product of brackets
Line graph	_____	E. A circular chart divided into slices showing parts of a whole

Section E — Short Answer

20 marks

41. Explain what it means to factorise an algebraic expression.

42. Explain the difference between an equation and an inequality.

Advanced • 4 pts

Advanced • 4 pts

43. Describe how to expand $(x + 4)(x + 1)$.

Advanced · 4 pts

44. Explain when you would choose to use a pie chart instead of a bar graph.

Advanced · 4 pts

45. Describe how to work out how many degrees a slice of a pie chart should be if it represents 20% of the data.

Advanced · 4 pts

Candidate Signature: _____ **Invigilator Signature:** _____

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Marks Obtained: _____ / 100

Checked By: _____

Result / Grade: _____

Date Checked: _____

EDUSAMBAM ASSESSMENT SERIES

Algebra (O-Level Focus) & Graphs / Pie Charts — Answer Key

Teacher reference: equivalent grammatically correct wording is acceptable for open-ended items when the meaning is preserved.

Section A — Multiple Choice

1. A

2. A

3. A

4. A

5. A

6. C

7. A

8. B
9. B

10. B

11. B

12. B

13. B

14. B

15. C

Section B — True / False

16. True

17. True

18. False

19. True

20. False
21. True

22. True

23. True

24. True

25. True

Section C — Fill in the Blank

26. factorising

27. expanding

28. inequality

29. 2

30. 4
31. pie

32. y

33. line

34. 180

35. bar

Section D — Column Matching

36. Factorise — D

37. Expand — A

38. Inequality — B
39. Pie chart — E

40. Line graph — C

Section E — Short Answer (Model Answers)

41. brackets; product; reverse of expand

42. equals; greater; less; range

43. multiply; x squared; 5x; 4

44. parts of a whole; percentage; proportion

45. 360; 72; multiply; percentage