



GOVERNMENT OF SAMOA

STUDENT EDUCATION NUMBER									

Samoa School Certificate

MATHEMATICS

2023

QUESTION and ANSWER BOOKLET

Time allowed: 3 Hours & 10 minutes

INSTRUCTIONS

1. You have 10 minutes to read **before** you start the exam.
2. Write your **Student Education Number (SEN)** in the space provided on the top right-hand corner of this page.
3. **Answer ALL QUESTIONS.** Write your answers in the spaces provided in this booklet.
4. If you need more paper to write your answers, ask the Supervisor for extra paper. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets to the appropriate places in this booklet.

STRANDS		Pages	Time (min)	Weighting
STRAND 1	NUMBERS	2 – 3	21	12
STRAND 2	ALGEBRA	4 – 9	71	38
STRAND 3	MEASUREMENTS	10 – 12	26	15
STRAND 4	TRIGONOMETRY	13 – 16	32	18
STRAND 5	GEOMETRY	17 – 21	30	17
TOTAL			180	100

Check that this booklet contains pages 2-22 in the correct order and that none of these pages are blank.

HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

1. What does the acronym **BEDMAS** stand for?

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SL 1

2. Malia wants to round the answer 0.00462 on her calculator to 2 significant figures. Describe to Malia the rules for rounding significant figures.

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SL 2

3. Calculate: $|| 5 - 4 | - 9 + 2 |$

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SL 2

4. Naruto spent $\frac{1}{5}$ of his money on his new shirt and $\frac{2}{3}$ on his new shoes. What fraction of his money has been spent?

SL 3

5. Naruto was given back his Mathematics test and he got 16 correct answers out of 20 questions. If the test is worth 10%, what is Naruto's score in percentage?

SL 4

For Question 6, choose and write the LETTER of the correct answer in the box provided.

6. Identify the algebraic expression from the list below.

A. $4x + 2 = 6$

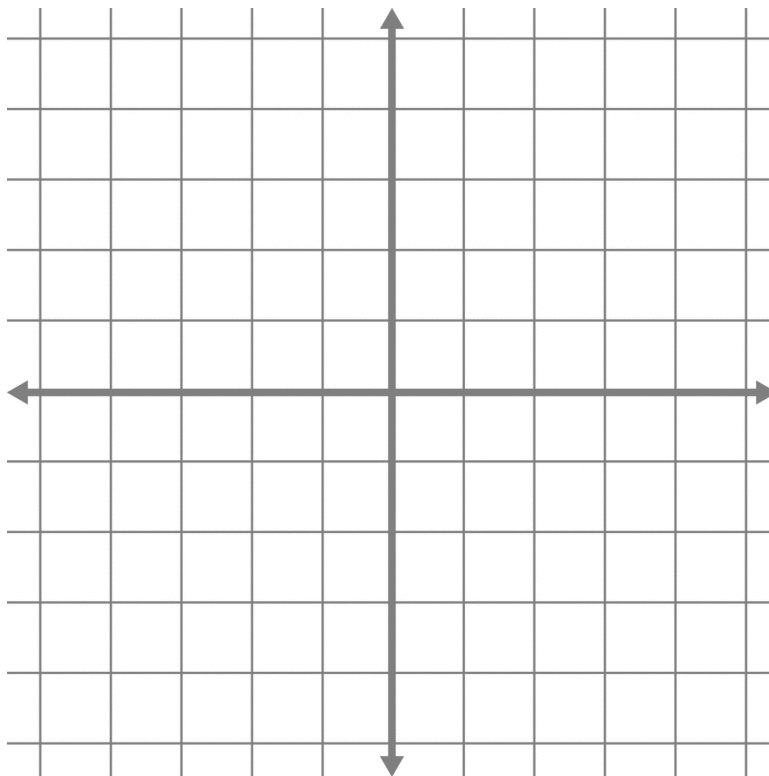
C. $4x + 2$

B. $4 + 2$

D. $5(4 + 2)$

SL 1

7. Three pairs of coordinate points $A(4,3)$, $B(-2,1)$ and $C(4,-5)$ are given.



(a) Label x and y axes correctly with their intervals on the grid.

SL 1

(b) Plot the coordinate points on the grid above.

SL 1

(c) Connect all three coordinate points using a straight line.

SL 1

8. Simplify this expression:

$$4(2x + 3) - 3x$$

SL 2

9. Find the gradient and y-intercept for the equation $2y - 4x + 6 = 0$

SL 2

10. Expand the expression $(3x - 4)^2$

SL 2

11. Describe the process of factorizing the quadratic expression $x^2 - 2x - 15$.
Do not give the factors.

SL 2

12. Describe how you can determine the intercepts of hyperbolic function $y = -\frac{3}{x+1}$
Do not draw the graph.

SL 2

13. Simplify the rational expression $\frac{2x-3}{5} - \frac{x+9}{6}$ into a single fraction.

SL 3

14. Solve for the value of x .

$$3x - 4 = \frac{5}{2}x + 2$$

SL 3

15. Solve the following simultaneous equations using the substitution method.

$$\begin{aligned}2x - 3y &= -8 \\ y &= x + 3\end{aligned}$$



SL 3

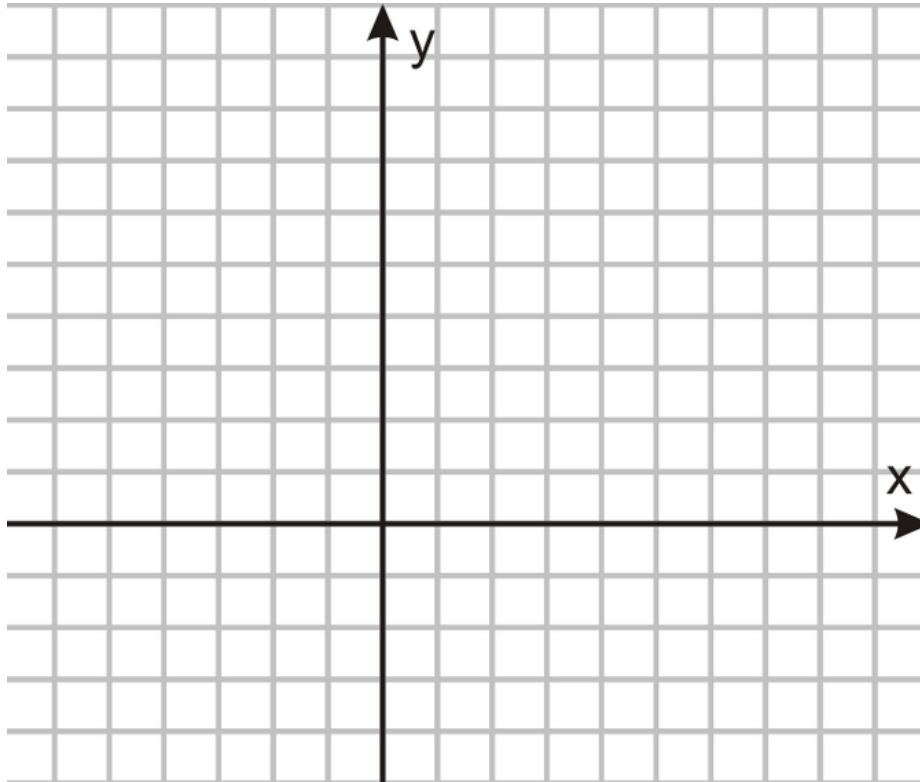
16. Use factor theorem to factorize the cubic expression $x^3 + 2x^2 - x - 2$



SL 3

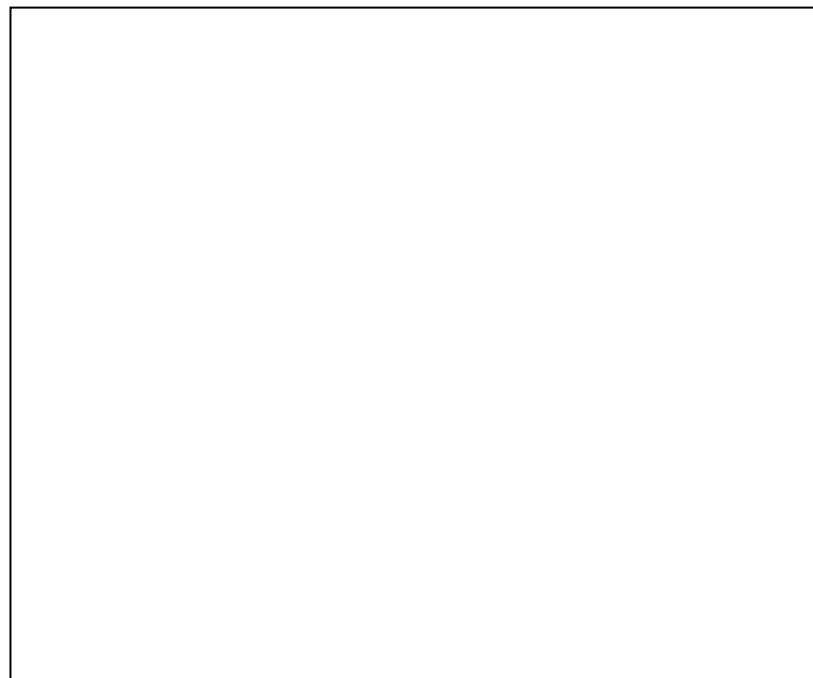
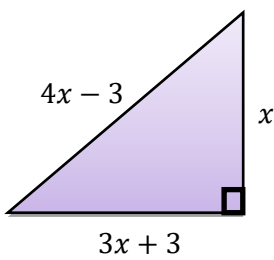
17. Draw the graph of the cubic equation given below.

$$y = (x - 2)(x - 1)(x + 1)$$



SL 4

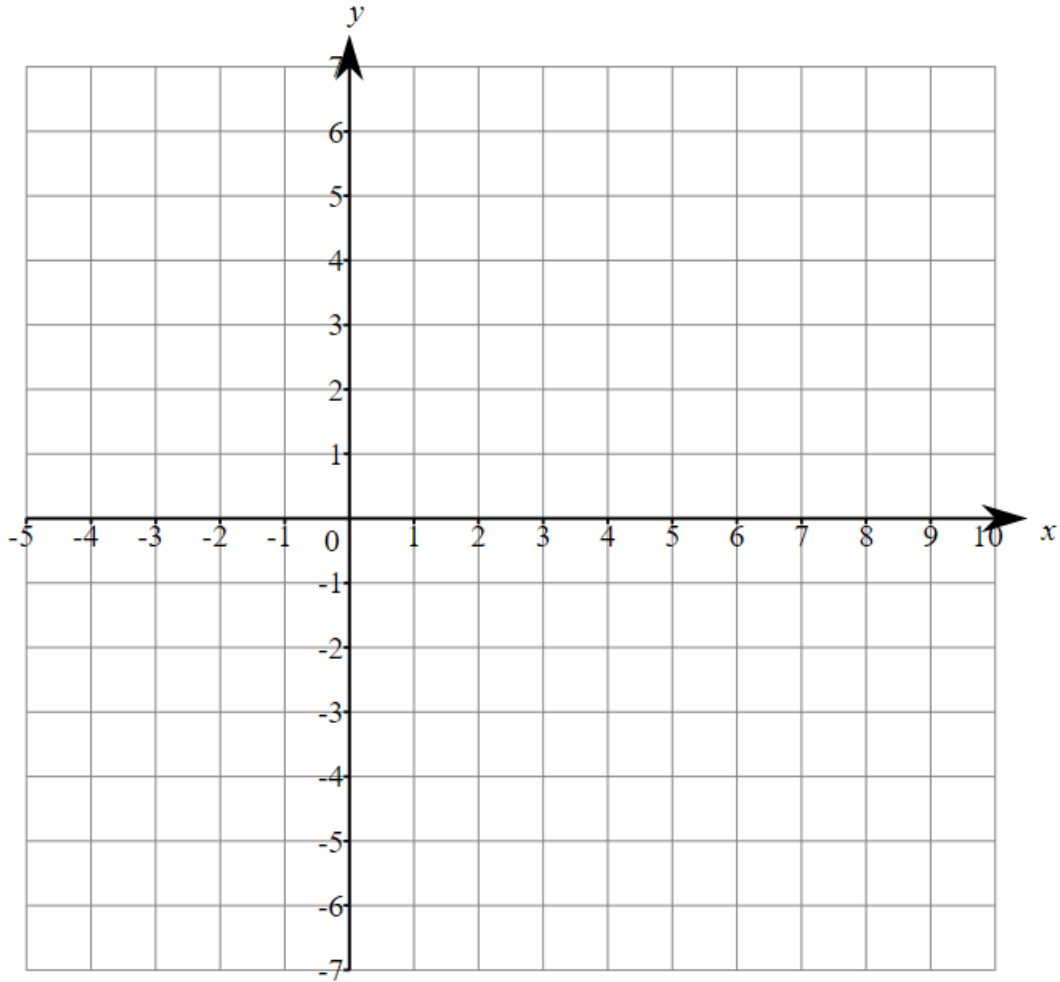
18. The right-angled triangle drawn below has sides x , $3x + 3$, and $4x - 3$. Find the lengths of the three sides.



SL 4

19. Draw the graph of the hyperbola and give the equations of the vertical and the horizontal asymptotes.

$$y = \frac{2}{x-2} + 1$$



SL 4

20. Sasuke's gross salary per annum before tax is \$14,000. After deducting his tax of 27%, what is his net salary?

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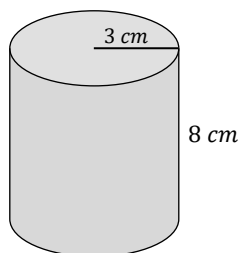
SL 2

21. Given that it takes 39 minutes for Sasuke to reach home from work, at what time must he leave his workplace in order to be home by quarter after 6pm?

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SL 2

22. Calculate the volume of the cylinder shown. Give your answer in 2dp. [$V = \pi r^2 h$]



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SL 2

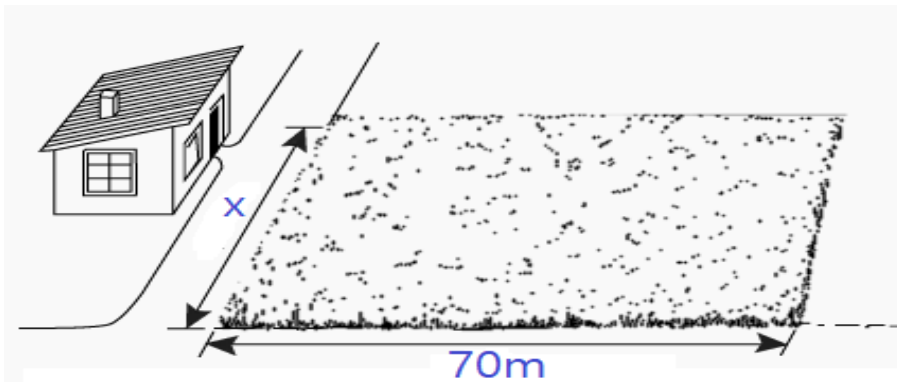
23. loane can wash 95 cars in 5 days. How many cars can he wash in 11 days?

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SL 3

Use the diagram below to answer Questions 24 and 25.

The perimeter of a rectangular field is $210m$ and its length is $70m$ as shown below:

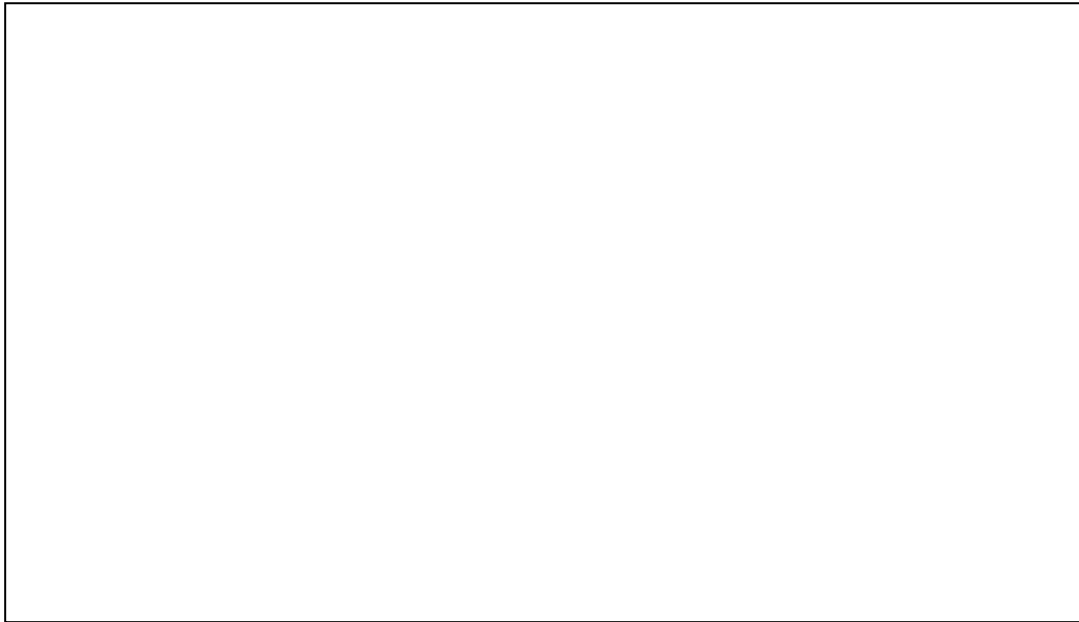


24. Find the area of the field.

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SL 3

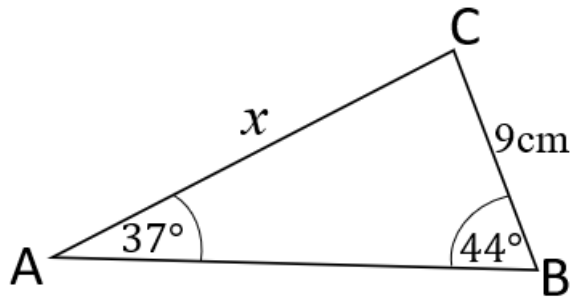
25. Find the total cost of fencing the field if the fencing costs \$7 per metre.



SL 3

Use the non-right-angled triangle given below to answer Questions 26 and 27.

26. Give the Sine Rule for finding the unknown side x .



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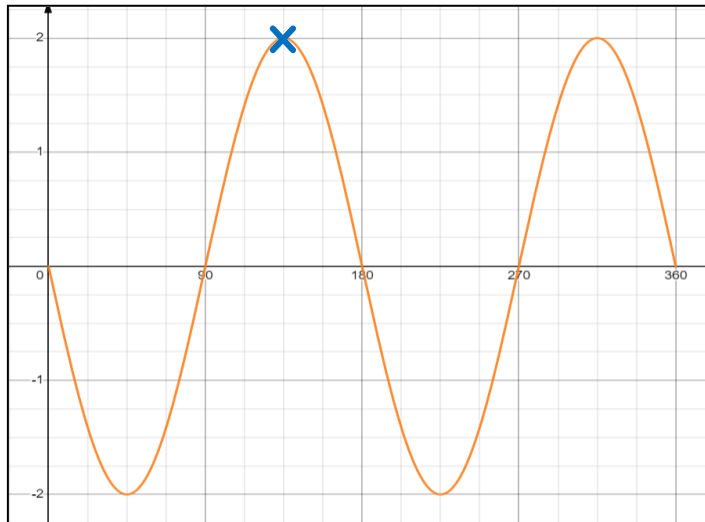
SL 1

27. Find the actual length of side x of the non-right-angled triangle.

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SL 3

Use the graph below to answer Questions 28 to 31.



28. Name the function represented by the graph above.

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SL 1

29. Determine the amplitude of the graph.

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SL 2

30. Give the period of the graph.

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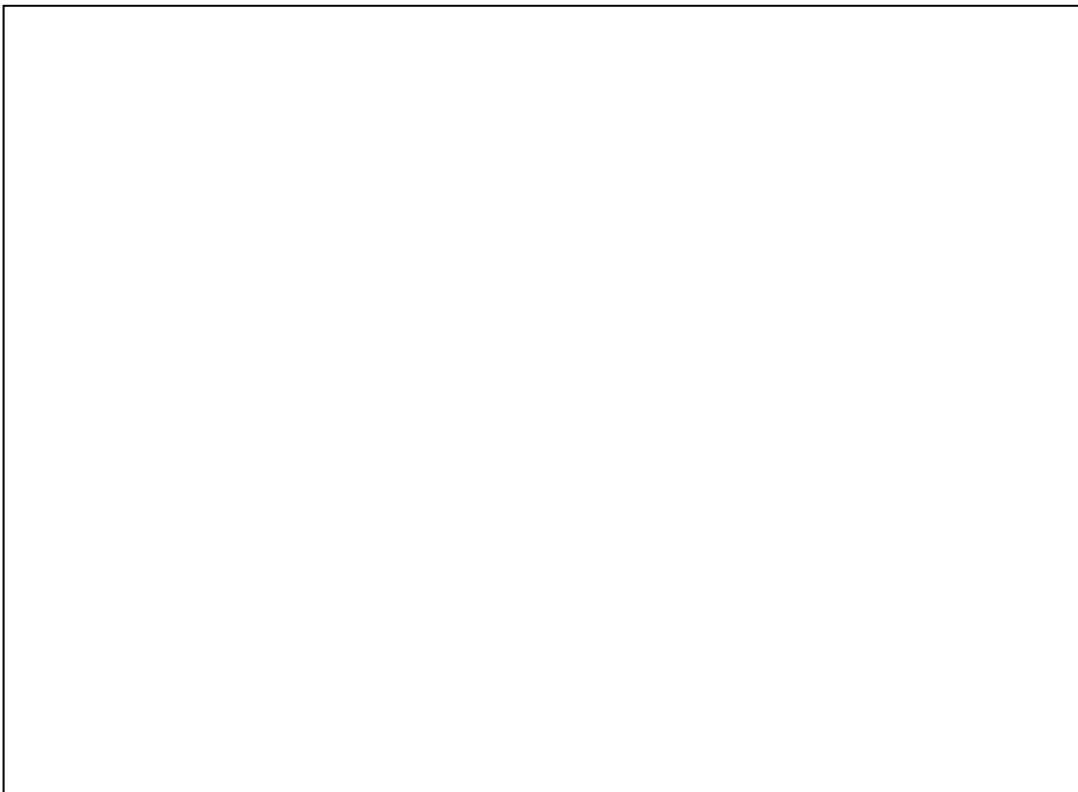
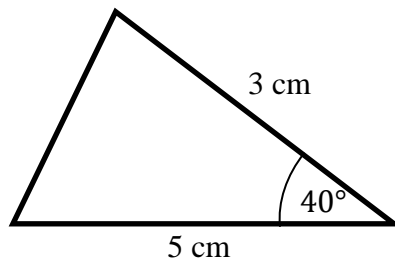
SL 2

31. Determine the coordinates of the turning point marked with the symbol \times on the graph.



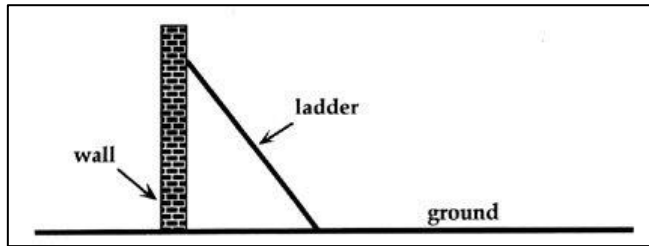
SL 2

32. Calculate the area of the triangle below.



SL 3

33. A ladder has been placed against a wall so that the angle between the ladder and the wall is 27° . The foot of the ladder is 1.3 m from the wall. Calculate the length of the ladder.



Large empty rectangular box for the student's solution.

SL 4

34. State what *scale factor* is.

SL 1

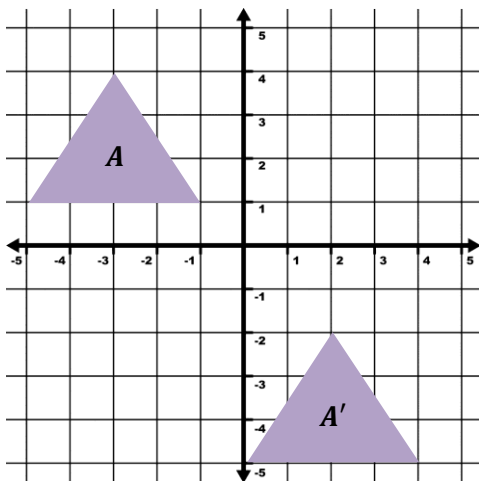
35. State the property of an angle on a straight line.

SL 1

36. What is an isosceles triangle?

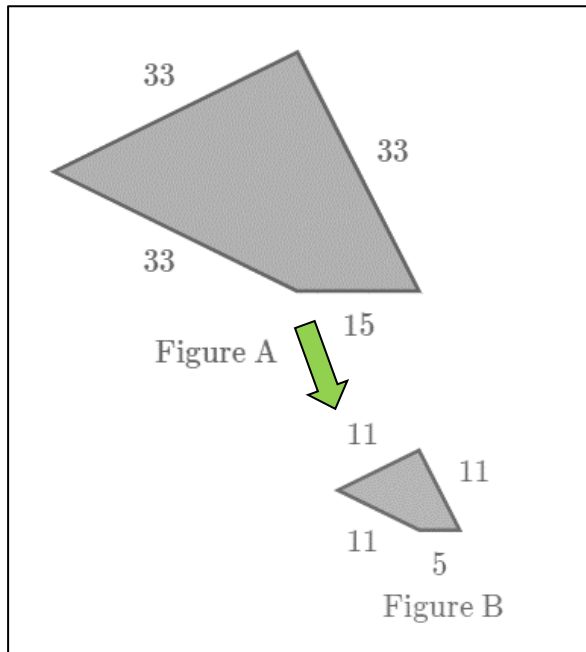
SL 1

37. Use vectors to describe the translation from **A** to **A'**.



SL 2

38. Figure B is a scaled copy of Figure A.

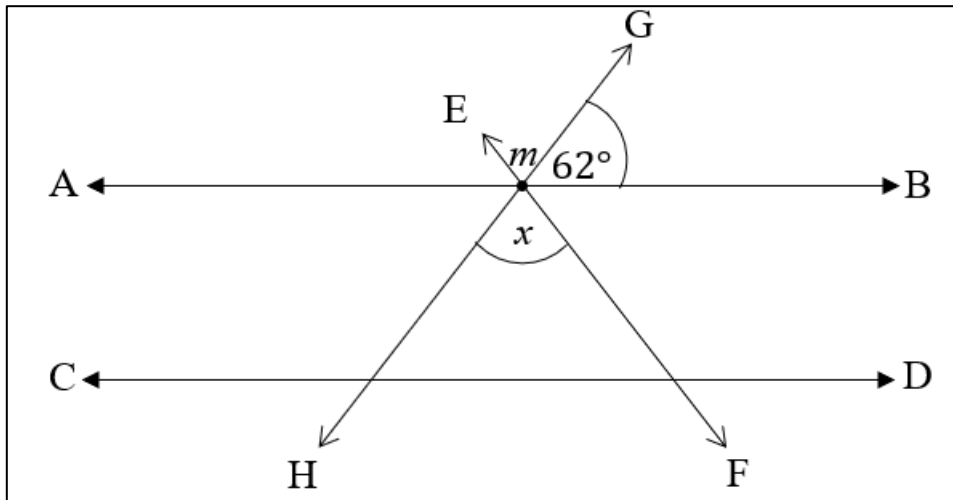


What is the scale factor that reduces Figure A to Figure B?

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SL 2

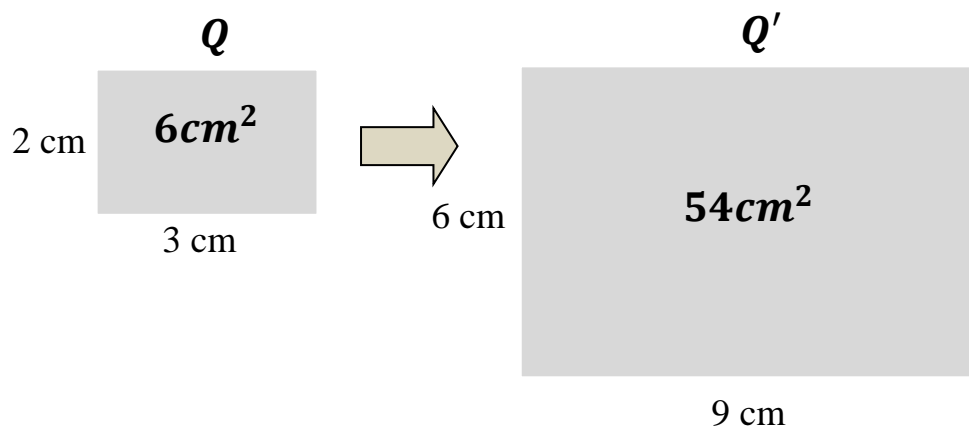
39. Lines AB and CD are parallel in the diagram below.



If the lengths mH and mF are equal, calculate angle x .

SL 3

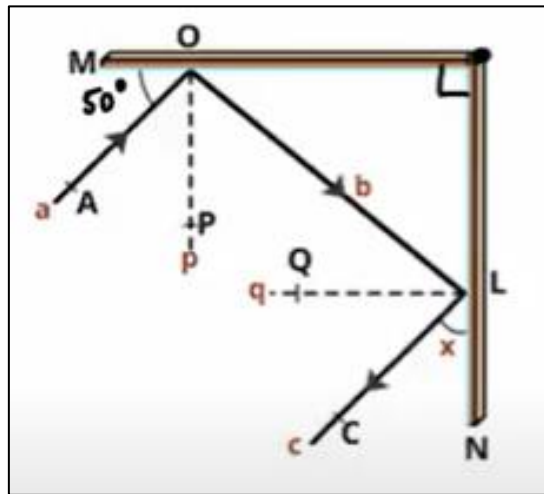
40. Figure Q was enlarged to get figure Q' . Their areas are given.



What is the relationship of the scale factor between the lengths and the areas given.

SL 3

41. Two mirrors M and N are placed horizontally perpendicular to each other as shown in the diagram below.



Find angle x .

SL 4

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SSC MATHEMATICS

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