



STUDENT EDUCATION NUMBER									

Samoa National Junior Secondary Certificate

GENERAL MATHEMATICS 2022

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 at the appropriate places in this booklet.

STRANDS		Pages	Time (min)	Weighting
STRAND 1	NUMBERS & OPERATION	2-3	18	10
STRAND 2	ALGEBRA	4-6	38	21
STRAND 3	STATISTICS & PROBABILITY	7-9	25	14
STRAND 4	MEASUREMENT	10-13	34	19
STRAND 5	GEOMETRY	14-16	22	12
STRAND 6	TRIGONOMETRY	17-18	13	7
STRAND 7	RATES OF CHANGE	19-21	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. If $\frac{8.9}{4.1 \times 1.2} \approx 1.808943$, round the answer to 3 significant figures.

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SL 1

2. Simplify the expression $\frac{6^{-3} \times 3}{2^{-1}}$

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SL 2

3. Write the ratio $4:3\frac{2}{3}$ in its simplest form.

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SL 3

4. Sebastian takes 3 hours to deliver 189 newspapers to stores from the villages of Vaigaga to Falelatai. What is the rate per hour at which he delivers the newspapers?

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SL 4

5. Rewrite the expression to have only positive indices $\frac{x^{-4}}{x^4}$

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SL 2

- 6 Rewrite equation $-4x + 2y - 8 = 0$ to the form $y = mx + c$

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SL 2

7. State the equation of the x-axis.

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SL 1

8. Write $\sqrt[3]{125}$ in its index form.

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SL 1

9. Find the y-coordinate of a point on $y = x^2$, when $x = -3$.

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SL 1

10. There are two numbers whose sum is 72. One number is three times the other. Write an equation to represent the information given.

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SL 3

11. Solve and graph the inequality on a number line, $-4x \leq -12$

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SL 3

12. Find the binomial expansion of $(x + 4)^3$, simplifying the terms.

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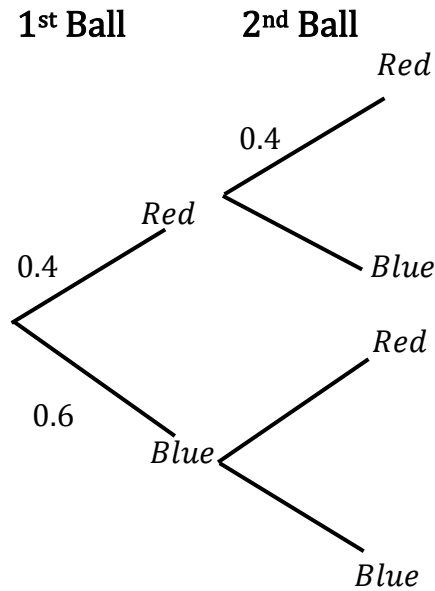
SL 4

13. A farmer needs to buy fencing to go around his rectangular garden. The garden is 200 feet long by 150 feet wide. How much fencing will he need?

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SL 4

14. A bag contains 4 red balls and 6 blue balls. A ball is taken from the bag at random and then replaced. Another ball is then taken from the bag at random. What is the probability that the first ball is blue and the second ball is red?



SL 2

15. Suppose there are thirteen marbles in a box. Five marbles are green(G), and eight marbles are yellow(Y). When two marbles are drawn at a time, with replacement list the possible outcomes of an event of getting a green and a yellow marble.

SL 2

16. Define Sampling Bias.

SL 1

17. If a coin was flipped 84 times and it landed on tails 20 times, what will be the relative frequency for landing on heads?

SL 1

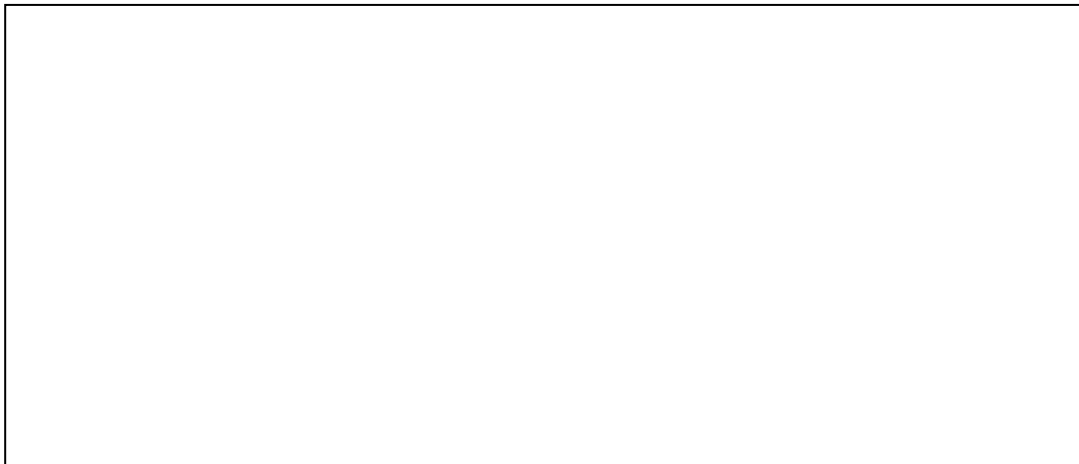
18. The coach of a secondary school basketball team, team A wants to compare the heights, in centimeters, of the players in his team with those of the players in the opponent team, team B. The heights of the players of the two teams are listed below. Display the data on a back to back Stem and Leaf Plot.

Team A	Team B
186, 184, 182, 180, 195, 193, 191, 195	182, 185, 186, 187, 193, 195, 196, 190, 194, 203

SL 4

19. The frequency table below shows the scores of all National Football League teams in the first game of the 2021 season. Construct a Histogram to represent the data.

NFL Team Scores		
Score	Tally	Frequency
0-9	II	2
10-19	### III	8
20-29	### ### I	11
30-39	### IIII	9
40-49	II	2



SL 3

20. **Fill the missing word to complete the sentence.**

Results from a random sample can be used to make predictions about an entire _____.

SL 1

21. Given Fiji is 2 hours behind Samoan time, what will be the time in Fiji if it is 12.30pm in Samoa?

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SL 1

22. The radius and height of a cylindrical water tank are 10 cm and 14 cm respectively. Find the volume of the tank.

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SL 2

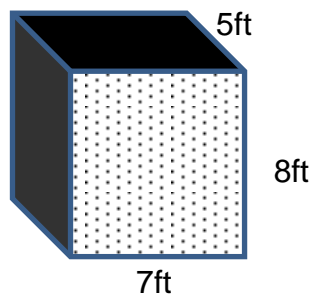
23. If the Perimeter of the given square is 12 cm, what is the length of its side?



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SL 3

24. Tai needs to buy some cardboard to build the box without a lid. The box is 7 feet long, 5 feet wide and 8 feet high. How much cardboard should she buy?



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SL 3

25. Convert 216cm into *millimeters*.

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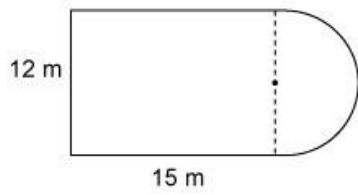
SL 1

26. The number 12.056177 , when changed to a 4 decimal places is:

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SL 1

27. Find the perimeter of the figure below.



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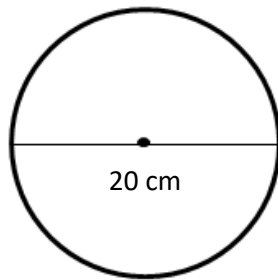
SL 3

28. A rectangle with dimensions of 10cm by 2cm, has the same area as another rectangle with dimensions 5cm by 4cm. Find the perimeter of both rectangles.

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SL 3

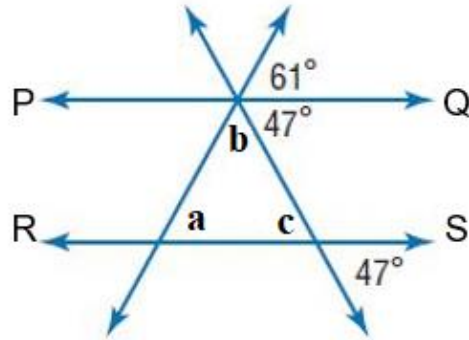
29. Find the circumference of the circle below.



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SL 2

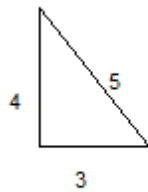
30. In the diagram below, line PQ is parallel to line RS and two transversal lines intersect the pair of parallel lines to form a triangle abc. Use the diagram to find angle b and angle c.



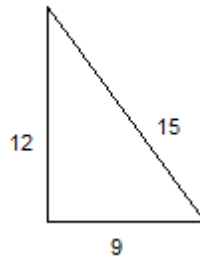
SL 2

31. Find the scale factor for the following enlargement.

Object

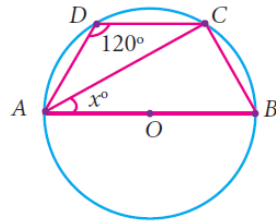


Image



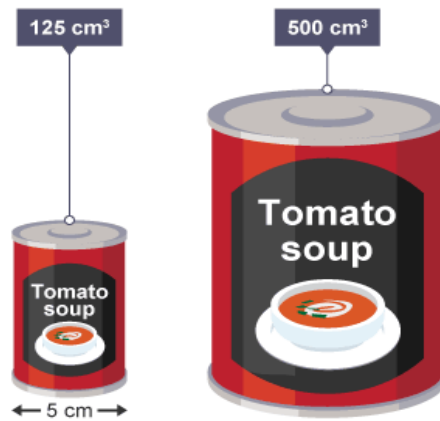
SL 1

32. Find the value of x in the given figure.



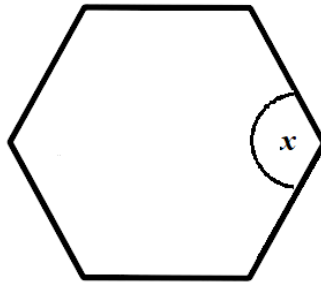
SL 4

33. These two cans of soup are similar. Calculate the diameter of the larger can of soup.



SL 3

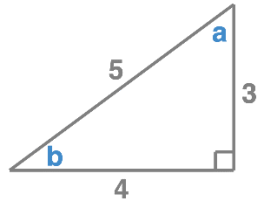
34. The diagram below shows a regular hexagon. Find angle x



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SL 2

35. Given the right-angled triangle shown below, state the length of the adjacent side to angle a .



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SL 1

36. Use your scientific calculator, to convert the decimal degrees 49.34° into Degrees, Minutes and Seconds.

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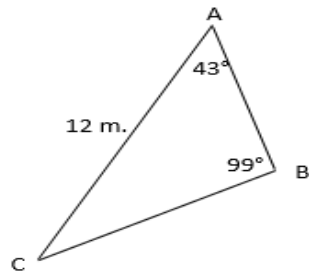
SL 1

37. What is angle 225° in Radians.

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SL 2

38. For the triangle given below, find the length of the side facing angle 43° .



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SL 3

39. Which of the three functions given below, is a Linear Function?.

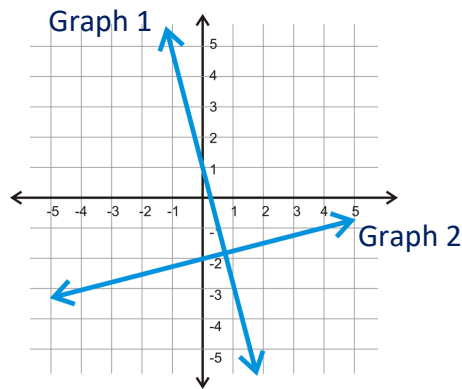
$$\sqrt{x} + 9 = y, \quad y = 2x + 5, \quad x^2 + 3y = 9$$

SL 1

40. Find the value of $f(x) = x^2 + 5x$, at $x = 3$.

SL 2

41. Of the two-line graphs shown, state which graph has a positive gradient and a negative gradient? Give proof to your answers.



SL 3

42. A child building a tower with blocks uses 15 for the bottom row. Each row has 2 fewer blocks than the previous row. Suppose that there are 8 rows in the tower, how many blocks are used for the top row?

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SL 3

43. Define geometric sequence.

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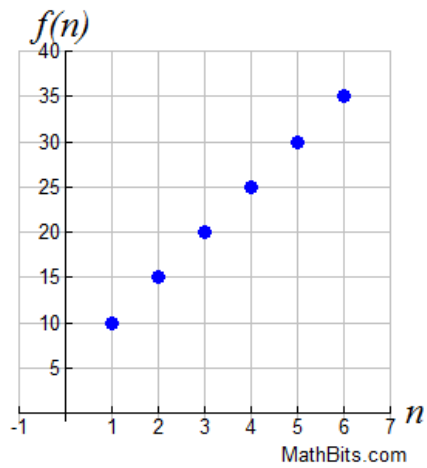
SL 1

44. Find the 8th term of the geometric sequence 48, 24, 12, 6, 3, ...

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SL 1

45. Write the first five terms of the arithmetic sequence illustrated by the given graph.



SL 2

46. The table below recorded the distances travelled of a moving car.
Graph the recordings

<i>Serial#</i>	1	2	3	4	5
<i>Time</i>	0	5s	10s	15s	20s
<i>Distance</i>	0	10m	20m	30m	40m

SL 4

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2022

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