SST6 Mathematics (ACER)

Test 19

Test Code: SST6M19

Student Name: _____ Student ID: _____

PLEASE READ THE INSTRUCTIONS BELOW CAREFULLY:

You may use the back of your answer sheet for your working. This is what you are given at the real exam to use as working paper.

DO NOT WRITE ANYWHERE ELSE ON THE EXAM PAPER

This test asks you to look at ___ material and to answer all the questions on this material.

- This test paper **CANNOT BE TAKEN OUT** of the classroom
- You **MUST GIVE THE TEST PAPER BACK** before you leave the classroom
- You must **WRITE YOUR NAME AND ID** on this page and the answer sheet
- You must **PUT AWAY ALL ELECTRONIC DEVICES** and any other materials that could help you on this exam
- **DO NOT TOUCH OR DRAW ON** the barcode that is on your answer sheet

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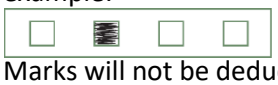
Advice for the test:

- For each question, you are given 4 or 5 possible answers marked A, B, C, D and E. Attempt to find the correct answer, and shade the corresponding bubble on the answer sheet.
- Each question is worth 1 mark, so try not to spend too long on one question – leave it for after you have finished the other questions.
- Check that the question number you are doing on the test paper is the same as the question number that you are shading on the answer sheet.
- There are no marks lost for incorrect answers, so even if you cannot solve a question, shade the box for the answer you think is most correct.

Instructions for the Answer Sheet:

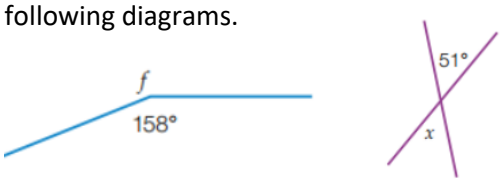
- Use a B or HB pencil.
- Write your name, student ID and test code on the sheet.
- Shade the box which indicates your answer. All answers must be completed like THIS example:



- Marks will not be deducted for incorrect answers.
- No mark will be given if more than ONE answer is completed for any question.
- If you make a mistake, ERASE the incorrect answer – DO NOT cross it out.

1. The solution to the equation $\frac{3x+1}{2} - 1 = 11$ is
   A. $x = 7$
   B. $x = \frac{23}{3}$
   C. $x = \frac{3}{23}$
   D. $x = 6$
   E. $x = \frac{23}{6}$

2. Find the values of f and x respectively in the following diagrams.



   A. f=158 degrees, x=51 degrees
   B. f=32 degrees, x=129 degrees
   C. f=22 degrees, x =51 degrees
   D. f=202 degrees, x=51 degrees
   E. f=158 degrees, x=129 degrees

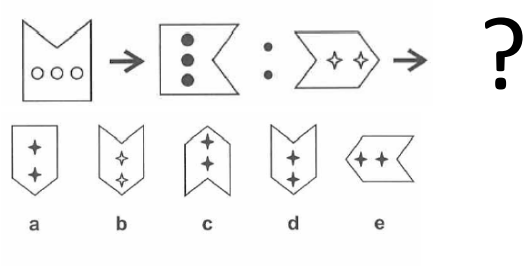
3. Round 29.4984 to the nearest whole number, and to the nearest hundredth, respectively.
   A. 29 29.1
   B. 30 29.49
   C. 29 29.50
   D. 30 29.5
   E. 39 29.5

4. A family travelling to Bendigo covers one-third of the journey before 1 p.m. and a further one-quarter of the journey between 1 p.m. and 2 p.m. What fraction of the journey have they travelled by 2 p.m.?
   A. $\frac{1}{3.5}$
   B. $\frac{1}{7}$
   C. $\frac{1}{12}$
   D. $\frac{5}{12}$
   E. $\frac{7}{12}$

5. The letter tiles for the word MELBOURNE are placed in a box. One piece is withdrawn at random. What is the probability of obtaining the vowel that appears in the word twice?
   A. $\frac{2}{9}$
   B. $\frac{1}{9}$
   C. $\frac{1}{18}$
   D. $\frac{4}{9}$
   E. $\frac{4}{36}$

6. Find $33\frac{1}{3}\%$ of 621
   A. 207%
   B. 204.93
   C. 20493
   D. 207
   E. $\frac{207}{100}$

7. Find the next pattern in the sequence.



   A. a
   B. b
   C. c
   D. d
   E. e

8. Lolly earns $400 a week and pays 15% of this in tax. How much can she earn after tax for one year, given that she works on average four weeks a month?
   A. $16320
   B. $2880
   C. $28800
   D. $163200
   E. None of the above

9. Three swimmers take 28 seconds, 44 seconds, and 68 seconds to complete a lap of the pool. If they start together, how long will it be before they are side by side at one end of the pool again?
   A. 1232 seconds
   B. 2992 seconds
   C. 1904 seconds
   D. 4708 seconds
   E. 5236 seconds

10. $-10 - 10 \times 2$=
   A. 0
   B. -40
   C. -30
   D. -22
   E. -10

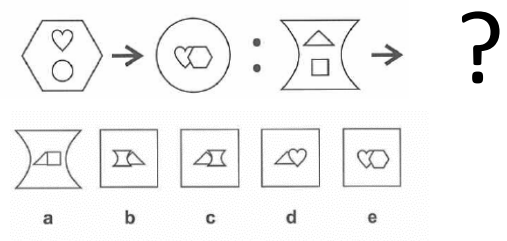
11. Using $a^2 - b^2 = (a + b)(a - b)$,
$21^2 - 19^2$ =
A. 40
B. 2
C. 80
D. 160
E. 6400

12. Using the formula given in the Question 11, which of the following numbers can be used to write 51 as the difference of two squares?
A. 7, 8
B. 8, 9
C. 7, 11
D. 10, 7
E. 8, 10

13. A bag contains three red marbles numbered 1 to 3, five green marbles numbered 4 to 8, and two yellow marbles numbered 9 and 10. A single marble is withdrawn at random. Find the probability that the number is green and a factor of 4.
A. $\frac{1}{10}$
B. $\frac{1}{5}$
C. $\frac{1}{2}$
D. $\frac{1}{12}$
E. $\frac{3}{10}$

14. How many zeros are there in the number $2^{23} \times 5^{20}$?
A. 460
B. 23
C. 20
D. 43
E. 400

15. Find the next pattern in the sequence.



A. A
B. B
C. C
D. D
E. E

16. When it is 7:30am in Timarubai, it is 4:40 pm on the same day in Mumammiya. What time will it be in Timarubai when it is 22:15 pm in Mumammiya?
A. 1:10pm
B. 1:05pm
C. 12:15pm
D. 12:10pm
E. None of the above

17. 10080 min = _____days
A. 6 and a half days
B. 6.33 days
C. 6 days and 3 hours and 10 minutes
D. 7 days
E. 7 and a half days

18. 6m+2n-4m-3n=
A. 10m+n
B. 10m-n
C. 2m+n
D. 2m-n
E. 10m-5n

19. $\frac{7}{8} \div \frac{1}{2} \div \frac{1}{2} =$
A. 3.5
B. $\frac{7}{8}$
C. $\frac{14}{16}$
D. $\frac{28}{7}$
E. $\frac{7}{16}$

20. 12 flowers in 4 vases = _____
A. 3 flowers in 2 vases
B. 2 flowers in a vase
C. 6 flowers in 3 vases
D. 9 flowers in 2 vases
E. 15 flowers in 5 vases

Questions 21 and 22 are based on the following table.

This table shows different levels of gym membership.

Level	Joining fee	Monthly fee
Basic	$20	$10
Bronze	$30	$15
Silver	$40	$20
Gold	$50	$25

21. What is the total cost for the first year of a Silver membership?
    A. $40
    B. $240
    C. $720
    D. $280
    E. $60

22. Which formula shows how to calculate the total cost for n months, where n is any number?
    A. Joining fee + Monthly fee + n
    B. Joining fee + Monthly fee x n
    C. (Joining fee + Monthly fee) x n
    D. Joining fee + Monthly fee +12x n
    E. Joining fee/12 + Monthly fee + n

23. The average height of four students is 160cm. After including six other students, the average height becomes 163cm. What is the average height of the six other students?
    A. 164cm
    B. 165cm
    C. 166cm
    D. 166.5cm
    E. 170cm

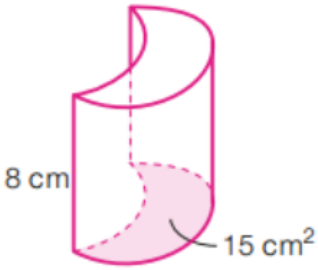
24. Which of the following number is odd?
    A. 17
    B. 37
    C. 47
    D. 57
    E. 67

25. The Student Council at a school conducted a survey of waiting time at the canteen. This table shows the waiting time for 183 students.

Waiting time (minutes)	Number of students
0–<2	8
2–<4	26
4 –<6	59
6 –<8	46
8 –<10	35
10 –<12	4
12 –<14	3
14–<16	2

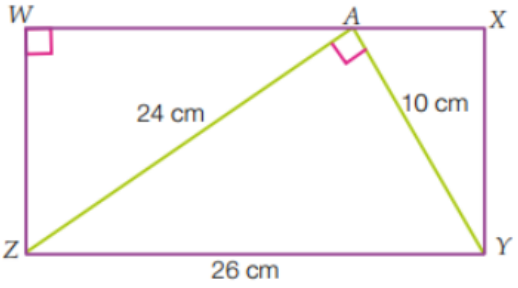
How many students waited for at least 8 minutes?
    A. 35
    B. 9
    C. 44
    D. 139
    E. 59

26. Calculate the volume of the solid.



    A. 1200 cm^3
    B. 120 cm^3
    C. 400 cm^3
    D. 40 cm^3
    E. 158 cm^3

27. What is the area of the rectangle WXYZ?



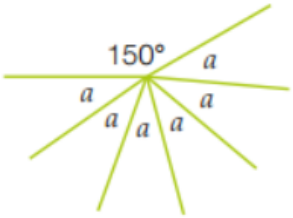
    A. 230 cm^2
    B. 240 cm^2
    C. 260 cm^2
    D. 312 cm^2
    E. Not enough information given

28. A recipe for cherry muffins needs 150g of cherries. The recipe makes 12 muffins. What mass of cherry is required to make 40 muffins?
    A. 350 g
    B. 400 g
    C. 450 g
    D. 500 g
    E. 600 g

29. Yi can swim in water with a speed of 13km/hr in still (not moving) water. If the speed of the stream is 4km/hr, what will be the time taken by her to go 68km downstream?
    A. 2.5 hours
    B. 3 hours
    C. 3.5 hours
    D. 4 hours
    E. 4.5 hours

30. The area of one rectangle is 16km^2 and one length is 800m. How long is the other length?
    A. 20 m
    B. 200 m
    C. 2000 m
    D. 2 m
    E. 2 0000 m

31. Find the value of a in the following diagram.



    A. 30 degrees
    B. 35 degrees
    C. 40 degrees
    D. 60 degrees
    E. 15 degrees

32. Find the value of
    $(270 - 120) \div 5 + 6 \times (4 + 2 \times 3)$
    A. 90
    B. 276
    C. 60
    D. 138
    E. 174

33. Leah, Jun and Kelly share 155 hair clips. Leah gets 3 times as many hair clips as Jun while Kelly gets 29 more hair clips than Leah. How many hair clips does Kelly get?
    A. 50
    B. 58
    C. 79
    D. 83
    E. 85

34. The total surface area of a cube is 486 square centimetres. Find the volume of the cube.
    A. 9 cm^3
    B. 27 cm^3
    C. 81 cm^3
    D. $(\sqrt{486})^3$ cm^3
    E. 729 cm^3

35. $3.5 \div 5\% =$
    A. 0.007
    B. 0.07
    C. 0.7
    D. 7
    E. 70

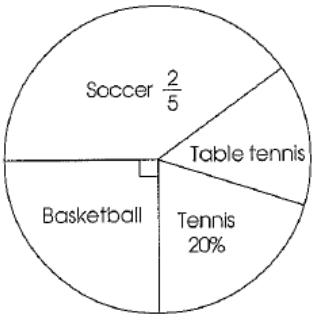
36. Rank the following in a descending order
    ① 2.4 ② $\frac{1}{4}$ ③ 4.1 ④ 0.24 ⑤ 0.4 ⑥ $\frac{1}{24}$
    A. ⑥④②⑤①③
    B. ⑥④⑤②①③
    C. ③①④⑤⑥②
    D. ③①⑤④②⑥
    E. ③①⑤②④⑥

37. If October 15 is a Thursday in 2020, what day of the week will October 15 in 2025 be?
    A. Monday
    B. Tuesday
    C. Wednesday
    D. Thursday
    E. Friday

38. Lucy invests $8000 at a rate of 6% p.a. for 4 years. What is total amount of money in her bank at the end of the 4 years?
    A. $8000 \times 6 \times 4 + 8000$
    B. $8000 \times 6 \times 4 \times 12 + 8000$
    C. $8000 \times 6\ \% \times 4 + 8000$
    D. $8000 \times 6\ \% \times 4 \times 12$
    E. $8000 \times 6\ \% \times 4 \div 12$

39. Spencer obtained the following scores on his first four History tests: 82, 89, 93, 88. If there is one more test left to complete, and he wants to achieve a mean score of 90, what is the score Spencer needs to obtain for his final test?
    A. 100
    B. 98
    C. 96
    D. 94
    E. 86

Questions 40 and 41 are based on the following information.
In a survey, 600 pupils were asked to select one favourite game each. This pie chart shows the results of the survey.



40. How many percent of the pupils selected soccer?
    A. 20%
    B. 40%
    C. 25%
    D. 50%
    E. 80%

41. In simplest form, what fraction of the pupils selected table tennis?
    A. $\frac{30}{360}$
    B. $\frac{15}{360}$
    C. $\frac{15}{100}$
    D. $\frac{3}{20}$
    E. $\frac{7}{50}$

42. What is the cube of $3\frac{1}{3}$?
    A. $\frac{1000}{27}$
    B. $9\frac{1}{27}$
    C. $27\frac{1}{27}$
    D. 33
    E. 10

Questions 43 and 44 are based on the following information.
Tommy, Li, Anna, Tammana and Kimmy play a game in which there are three equal prizes. No player can win more than one prize.

43. How many ways can the prizes be allocated?
    A. 10
    B. 15
    C. 25
    D. 8
    E. 6

44. What is the probability that Tammana does not win a prize?
    A. 0.2
    B. 0.4
    C. 0.6
    D. 0.8
    E. 1

45. Find the missing number:
    -3, 1, 5, ?

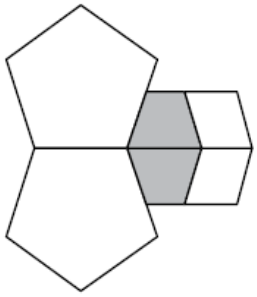
    A. 7
    B. 8
    C. 9
    D. 10
    E. 12

46. If Susan can make 8 cakes in 2 hours, how many cakes can she make in 5 hours?
    A. 12
    B. 16
    C. 18
    D. 20
    E. 25

47. Which of these units is best for measuring the thickness of a Myki card?
    A. mm
    B. cm
    C. m
    D. cm^2
    E. km

48. A submarine is 50 below the surface of the sea. It then dives another 150 meters deeper. Which of these represents how many metres below the surface the submarine is after the dive?
    A. 150 – 50
    B. 50 – 150
    C. -50 + 150
    D. -50 - 150
    E. -150 + 50

49. How many trapeziums and parallelograms are there respectively in the following shape?

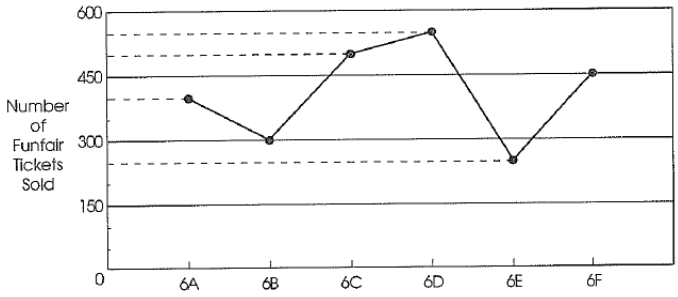


    A. 2 trapeziums and 2 parallelograms
    B. 2 trapeziums and 3 parallelograms
    C. 4 trapeziums and 1 parallelogram
    D. 4 trapeziums and 2 parallelograms
    E. None of the above

50. If 2/9 of a number is 14, find 1/3 of the number.
    A. 36
    B. 21
    C. 12
    D. 63
    E. 18

51. Mr. Walsh travelled at 55.5km/h for 2 hours before he stopped at a petrol station for 15 minutes. Then he continued his journey at 76 km/h for another $1\frac{1}{2}$ hours. What was his average speed for the whole journey?
    A. 64km/h
    B. 60km/h
    C. 66.7km/h
    D. 62km/h
    E. 68km/h

52. The following graph shows the number of funfair tickets sold by six primary 6 classes. How many more tickets did the 6D class sell more than 6A?



    A. 13
    B. 39
    C. 50
    D. 100
    E. 58

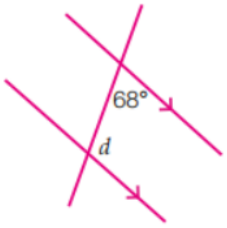
53. What is the missing number in the following square?

3	5	7
5	5	?
7	7	7

    A. 3
    B. 5
    C. 6
    D. 7
    E. 10

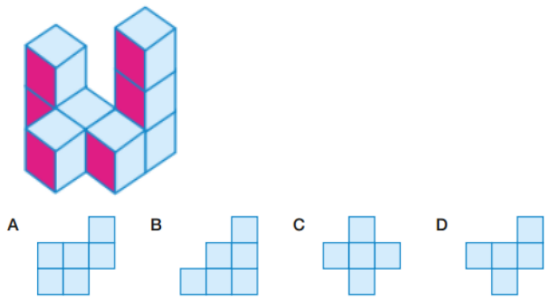
54. A bakery makes cherry pies ($C each) and pineapple pies ($P each). The store sold 15 cherries pies and 28 pineapple pies and the total amount of money sold was $170. Write one equation to represent this scenario.
    A. $15C + 15 + 28C + 28 = 170$
    B. $15C + 28P = 170$
    C. $15C - 28P = 170$
    D. $C = \frac{170}{50}, P = \frac{170}{28}$
    E. $15C + 28P = 170(P + C)$

55. Find the value of the pronumeral in the following diagram.



    A. 68 degrees
    B. 132 degrees
    C. 22 degrees
    D. 112 degrees
    E. 122 degrees

56. The front view of the solids shown has been shaded. Choose which of the following option is the top view of the solid.



A. A
B. B
C. C
D. D
E. None of the above

57. $0.12 \div 0.03 =$
A. 0.4
B. 0.04
C. 0.004
D. 40
E. 4

58. It takes 5 plumbers 34 days to finish a project. How long would it take 17 plumbers to finish the same project?
A. 8 days
B. 10 days
C. 11 days
D. 12 days
E. 17 days

59. Three lighthouses flash their lights every 8 seconds, 30 seconds and 35 seconds respectively. Given that the lighthouses flash together at 6:30pm, at what time will they next flash together?
A. 6:20 pm
B. 6:32 pm
C. 6:41pm
D. 6:44pm
E. 6:52pm

60. The points (0,1), (2,5) and (5,11) are plotted on a number plane and a straight line drawn through the points. Which one of the following points also lies on the line?
A. (1,2)
B. (3,7)
C. (3,9)
D. (4,10)
E. (6,15)

x	0	1	2	3	4	5	6
y	1	3	5	7	9	11	13