SST6 Mathematics (AAS)

Simulation Test 23-1

Test Code: SST6M23-1

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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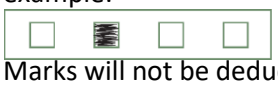
Advice for the test:

- 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:



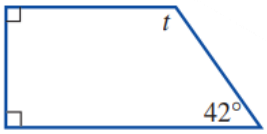
- Marks will not be deducted for incorrect answers.
- No mark will be given if more than ONE answer is completed for any question.
- If you make a mistake, ERASE the incorrect answer – DO NOT cross it out.

1. There are 48 children playing in a park and $\frac{3}{4}$ of them are wearing a hat.

How many children are not wearing a hat ?

A. 24 **B.** 12 **C.** 18 **D.** 36 **E.** 30

2. The value of the angle in the diagram on the right is:



A. 360° **B.** 222° **C.** 112°

D. 138° **E.** 180°

3. The letter N is used to represent a number. Which answer matches the following wording:

"The number plus the product of another number and 2".

A. $N + T$ **B.** $D(N + 2)$ **C.** $2N + 2B$ **D.** $2N + D$ **E.** $N + 2D$

4. Which rule can be used to produce the following table.

m	1	2	3	7	11
t	2	5	8	20	32

A. $t = 3m$ **B.** $t = 3m + 1$ **C.** $t = 3m - 1$

D. $t = 3m - 2$ **E.** $t = m + 5$

5. Nerve impulses to and from the brain travel at an average speed of 95 metres every second. Which is the closest estimate of the number of metres a nerve impulse travels in an hour ?

A. 350 000 **B.** 340 000 **C.** 36 000 **D.** 360 000 **E.** 6 000

6. A water purification plant pumps 15 million litres per day to a city which has a population of 200 000 residents. On average, how many litres would each person receive per day ?

A. 75 L **B.** 750 L **C.** 7.5 L **D.** 7 500 L **E.** 0.75 L

7. For the following set of data values, the average value will be:

2.6 , 3.7 , 4.0 , 3.1 , 4.2 , 2.8

A. above 4.0 **B.** between 3.6 and 4.0 **C.** below 3.0

D. between 3.0 and 3.2 **E.** between 3.2 and 3.5

8. A sketchbook contains 150 pieces of paper and each sheet of paper is 1.4 mm thick.
What is the thickness of the sketchbook ?

A. 21 cm **B.** 2.1 mm **C.** 0.21 cm **D.** 2.1 cm **E.** 210 mm

9. 12% of \$36.00 is:

A. \$3.00 **B.** \$2.88 **C.** \$4.32 **D.** \$4.00 **E.** \$4.20

10. Which of the following has the greatest value ?

A. 2^8 **B.** 8^2 **C.** 3^4 **D.** 4^3 **E.** 9^2

11. What is $55 - 9 \times (6 - 3) + 50 \div 2$ equal to:

A. 68 **B.** 53 **C.** 39 **D.** 163 **E.** 94

12. To change a fraction to a percentage, you should do the following:

A. divide by 100 **B.** multiply by $\frac{1}{100}$ **C.** divide by $\frac{1}{100}$

D. multiply by 100 **E.** write a percentage sign (%)

13. If you start with $x = 3$, which of these equations is not true ?

A. $\frac{2x}{3} = 2$ **B.** $\frac{x}{5} = \frac{3}{5}$ **C.** $-2x = -6$

D. $2x - 6 = 0$ **E.** $x - 5 = 2$

14. The number of edges, faces and vertices on a rectangular prism, in order, is:

A. 12 , 6 and 8 **B.** 6 , 8 and 12 **C.** 12 , 8 and 6

D. 8 , 12 and 6 **E.** 8 , 6 and 12

15. At a soccer match there was a crowd of 9 000 people of which 2 250 were females.
The ratio of the number of males to females was approximately:

A. 1 : 4 **B.** 4 : 1 **C.** 3 : 1 **D.** 1 : 3 **E.** 7 : 2

16. A coin is tossed 100 times and 'tails' appeared 60 times. The ratio of 'heads' to 'tails' is:

A. 2 : 3 **B.** 3 : 5 **C.** 3 : 2 **D.** 5 : 3 **E.** 2 : 5

17. If $\frac{a}{3} = \frac{b}{6}$ then:

A. $a = 2$ and $b = 4$ **B.** $a = 1$ and $b = 2$ **C.** $a = 3$ and $b = 6$

D. $a = 6$ and $b = 12$ **E.** all of these are true

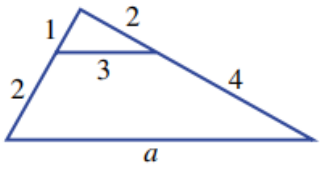
18. The sides of a triangle are in the ratio 3 : 4 : 5. If the longest side of the triangle measures 40 cm, what is the perimeter of the triangle ?

A. 480 cm **B.** 240 cm **C.** 120 cm **D.** 96 cm **E.** 56 cm

19. If $\frac{5}{6} > \frac{x}{5}$ then x could be:

A. 4 **B.** 5 **C.** 6 **D.** 7 **E.** all these numbers

20. If the two triangles on the right are similar, then a is:



A. 6 **B.** 8 **C.** 9

D. 12 **E.** 15

21. If the length and width of a rectangle are both increased by 30 %, the area of the rectangle will increase by what percentage ?

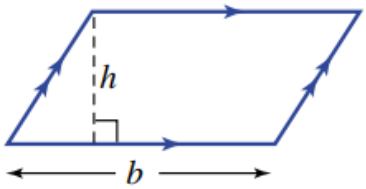
A. 30 % **B.** 69 % **C.** 90 % **D.** 130 % **E.** 169 %

22. A case containing 720 apples was bought for \$180. The cost could be written as:

A. 30 cents each **B.** 20 cents each **C.** \$3.00 per dozen

D. \$2.50 per dozen **E.** \$2.80 for 10

23. Which statement about the parallelogram is not true ?



A. The opposite sides of a parallelogram are parallel.

B. The height h is perpendicular to its base .

C. The area is given by the formula $A = b \times h$.

D. The perimeter is given by the formula $P = 2b + 2h$.

E. The area of the parallelogram is equal to the area of a rectangle whose length is the same as the base and whose width is the same as the height of the parallelogram.

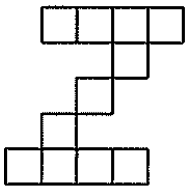
24. If $\frac{5}{8}$ of a number is 40, what is 150 % of that number ?

A. 72 **B.** 96 **C.** 60 **D.** 108 **E.** 144

25. The average age of six boys is 12.5 years. What will their total age be in 5 years' time ?

A. 75 yrs **B.** 80 yrs **C.** 90 yrs **D.** 100 yrs **E.** 105 yrs

26. The shape on the right has an area of 176 square centimetres.
What is the perimeter of this shape in centimetres ?



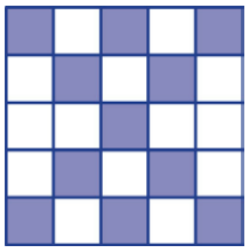
A. 128 cm **B.** 120 cm **C.** 112 cm

D. 108 cm **E.** 100 cm

27. The total number of three-digit numbers that can be made using 3, 5 and 8 once only is:

A. 3 **B.** 4 **C.** 5 **D.** 6 **E.** 9

28. Refer to the diagram of the square on the right.
What percentage of the square has not been shaded ?



A. 40 % **B.** 44 % **C.** 50 %

D. 56 % **E.** 60 %

29. Madison cleans the hamster cage every 7 days, brushes the dog every 9 days, and cleans the frog aquarium every 6 days. If Madison does all three today, how many days will pass before Madison takes care of all three of these pets on the same day again ?

A. It will be 9 days **B.** It will be 42 days **C.** It will be 54 days

D. It will be 63 days **E.** It will be 126 days

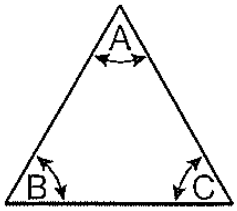
30. Two students are taking a multiple choice test. After 10 minutes, one student is one-third complete and the other student is two-eighths done. How much ahead of the second student is the first student ?

A. $\frac{1}{12}$ **B.** $\frac{1}{24}$ **C.** $\frac{3}{24}$ **D.** $\frac{1}{6}$ **E.** $\frac{1}{5}$

31. Each of the following numbers, except for one, are numbers that are only divisible only by prime numbers, itself and 1. Which number is the exception ?

A. 34 **B.** 35 **C.** 51 **D.** 57 **E.** 63

32. In triangle ABC, angles B and C are equal and angle A is 9° less than the other two angles. What is the size of angle B ?



A. 54° **B.** 63° **C.** 57°

D. 64° **E.** 66°

33. What is the next number in the following pattern ?

7 20 47 94 167 ?

A. 272 **B.** 288 **C.** 214 **D.** 256 **E.** 289

34. If $a \blacksquare b = (a + b) \times (a - b)$, then the value of $20 \blacksquare (5 \blacksquare 3)$ is ?

A. 80 **B.** 100 **C.** 168 **D.** 196 **E.** 240

35. A box of two dozen chocolate eggs weighs a total of 600 grams. If the empty box weighs 60 grams, how much will ten of the chocolate eggs weigh ?

A. 225 g **B.** 235 g **C.** 220 g **D.** 230 g **E.** 215 g

36. What is the next fraction in the following pattern ?

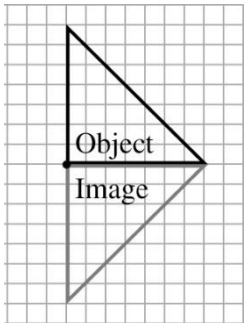
$\frac{1}{2}$ $\frac{7}{12}$ $\frac{2}{3}$ $\frac{3}{4}$?

A. $\frac{3}{5}$ **B.** $\frac{11}{12}$ **C.** $\frac{5}{6}$ **D.** $\frac{5}{7}$ **E.** $\frac{5}{8}$

37. Express 75 millimetres as a fraction of 3 metres in lowest terms.

A. $\frac{1}{25}$ **B.** $\frac{1}{40}$ **C.** $\frac{1}{50}$ **D.** $\frac{1}{4}$ **E.** $\frac{1}{30}$

38. What rotation has taken place on the object on the right in order to create the displayed image ?

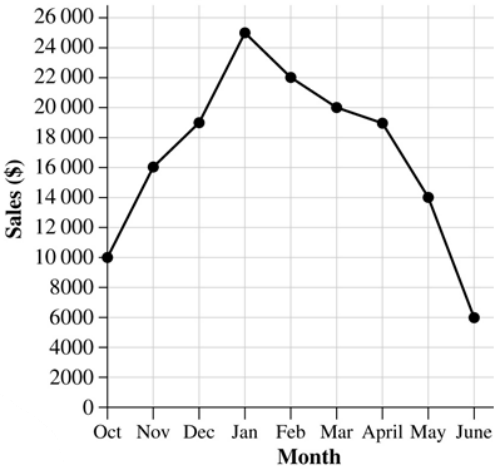


A. 90° anticlockwise **B.** 180° clockwise

C. 180° anticlockwise **D.** 270° clockwise

E. 270° anticlockwise

39. The chart on the right shows the sales of books by a shop over a nine month period.
What was the average sales per month when rounded to the nearest dollars ?



A. \$15 000 **B.** \$16 000

C. \$17 000 **D.** \$18 000

E. \$19 000

40. A gardener is mowing a rectangular lawn 40 metres long and 30 metres wide. He has cut all of it except for a rectangle that is 20 metres long and 15 metres wide.
What fraction of the lawn remains uncut ?

A. $\frac{1}{4}$ **B.** $\frac{1}{2}$ **C.** $\frac{2}{5}$ **D.** $\frac{1}{3}$ **E.** $\frac{3}{8}$