YOUNG LIVES SECONDARY SCHOOL SURVEY
Maths | Wave 1

This test booklet contains mathematics items
administered to students in Grades 10, at Wave 1 of Young Lives' school survey
in Vietnam. This survey took place in 2016.

Items were selected following extensive piloting.
For more details on item sources and the test development process, see
(Iyer et al, 2017. Young Lives School Survey, 2016–17: Evidence from Vietnam).

Young Lives
An International Study of Childhood Poverty

educational initiatives

YOUNG LIVES SECONDARY SCHOOL SURVEY

Maths | Wave 1

You should have been given 2 documents: this **Test Booklet** and a separate **Answer Sheet**. Before you begin, read these instructions carefully.

Carefully read the questions in this **Test Booklet.** For each question, there are four options – A, B, C and D. Only one of these options is correct. Identify the option which you think best answers each question.

On the **Answer Sheet** given to you, find the corresponding question number and draw a cross ('X') on the option you want to select. Only select one option for each question.

Example

A	B	C	D
		X	

Please do not write on the Test Booklet. Use a separate piece of paper for any working out.

If you want to change your answer, blacken the entire square for your original answer and then write a cross ('X') on the new answer you want to select.

Example

A	B	C	D
X			

Each question carries one mark. No marks will be deducted for wrong answers.

1 Which of the following is a prime number?

A. 5 **B.** 15

C. 25 **D.** 35

2 Δ is a common factor of 3 numbers X, Y and Z.

Shown below are the prime factorizations of X, Y and Z.

$X = 2 \times 3 \times 5 \times \Delta$

$Y = 2 \times 2 \times 3 \times 3 \times 5 \times \Delta$

$Z = 2 \times 2 \times 2 \times 3 \times 3 \times \Delta$

Which of the following is DEFINITELY a factor of the sum X + Y + Z?

A. 4 **B.** 5

C. 6 **D.** 9

3 Mai takes tablet A every 4 hours and tablet B every 6 hours. How often will she take both the medicines at the same time?

A. Every 2 hours **B.** Every 10 hours

C. Every 12 hours **D.** Every 16 hours

4 Numbers that can be written in the form $\frac{m}{n}$ where m and n are integers and n is not equal to 0 are called rational numbers.

Which of the numbers in the list below are rational numbers?

$-\frac{25}{2}$	0.3333.... (recurring)	$\frac{0.33}{10}$	1

A. Only $-\frac{25}{2}$ and 1 **B.** Only $-\frac{25}{2}$ and $\frac{0.33}{10}$

C. Only $-\frac{25}{2}$, 0,3333... (recurring) and 1 **D.** All of them are rational numbers

5 $-4 - (-5) =$ _____

A. -1

B. 1

C. -9

D. 9

6 Which of these numbers are equal?

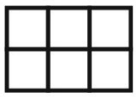
1^{119} 119^{1} 119^{0} 1^{1}

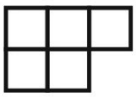
A. Only 1^{119} and 1^{1}

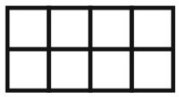
B. Only 1^{119} and 119^{1}

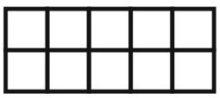
C. Only 1^{119}, 119^{0} and 1^{1}

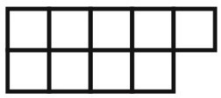
D. None of them are equal

7 If  represents 75%, which of the following represents 125%?

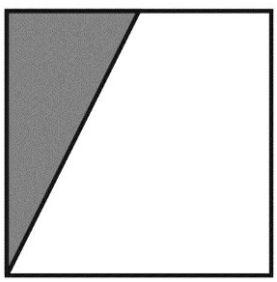
A. 

B. 

C. 

D. 

8 What fraction of the shape below is shaded?



A. 1

B. $\frac{1}{2}$

C. More than $\frac{1}{2}$

D. Less than $\frac{1}{2}$

9 If the ratio of Hoa's age to Thanh age is 2:3, which of the following is true about their actual ages?

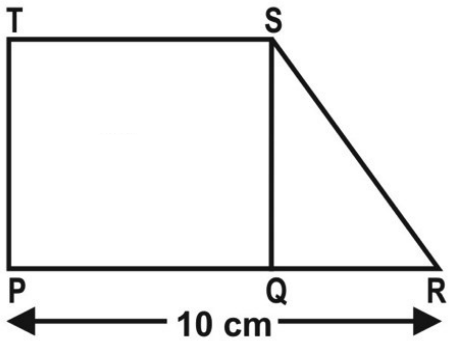
A. Thanh's age is 1 ½ times Hoa's age

B. Hoa is a year younger than Thanh

C. Thanh is 3 times as old as Hoa

D. Hoa's age is half of Thanh's age

10 A trapezium is divided into a square and a triangle as shown below.



Which of the following lengths, if known, would NOT be sufficient to find out the area of trapezium?

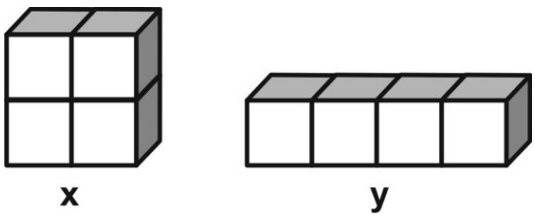
A. RS

B. PT

C. PQ

D. QR

11 Cuboid x and Cuboid y below are both made of 4 identical unit cubes each.



What can be said about the volume of x and y?

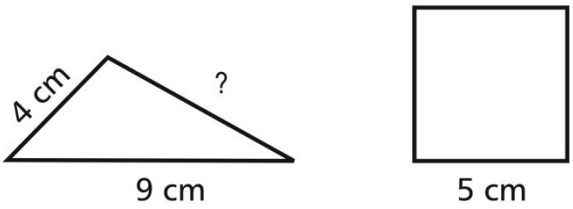
A. Volume of x is greater than volume of y

B. Volume of x is less than volume of y

C. Volume of x is same as volume of y

D. Volume of x and volume of y can't be determined

12 Shown here is a triangle with two of its sides as 9 cm and 4 cm and a square of side 5 cm.



Both the figures have the same perimeter. What would be the length of the third side of the triangle?

A. 5 cm

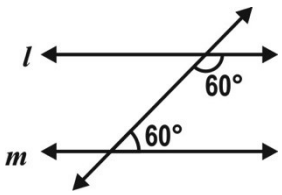
B. 7 cm

C. 8 cm

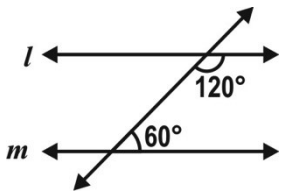
D. 13 cm

13 Lines l and m are parallel. Which figure shows the correct angle measurement?

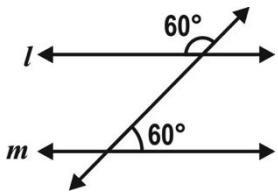
A.



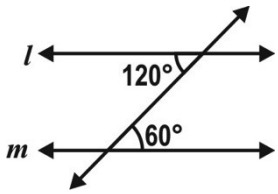
B.



C.



D.



14 Giang draws a triangle whose three sides are of length 5 cm each. He finds that all the three angles of the triangle measure 60° each.

Now he draws a triangle all of whose sides are 10 cm each. Which of these is true about the three angles of this triangle?

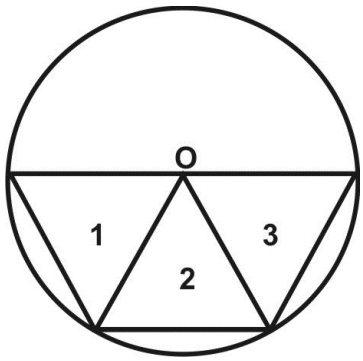
A. All the three angles will measure 30° each

B. All the three angles will measure 60° each

C. All the three angles will measure 120° each

D. We cannot say anything without measuring the angles

15 Three equilateral triangles are inscribed in a circle with center O as shown below.



Which of the three triangles are congruent?

A. Triangles 1 and 2 only

B. Triangles 2 and 3 only

C. Triangles 1 and 3 only

D. All the three triangles

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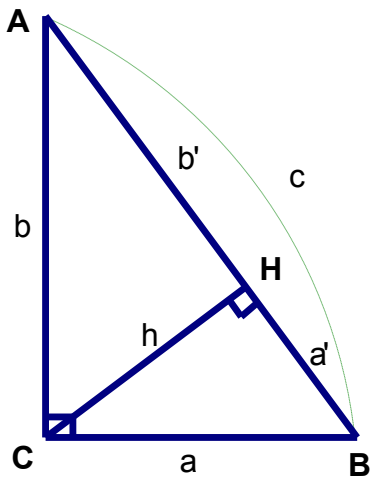
17 According to the following figure, which answer is correct?



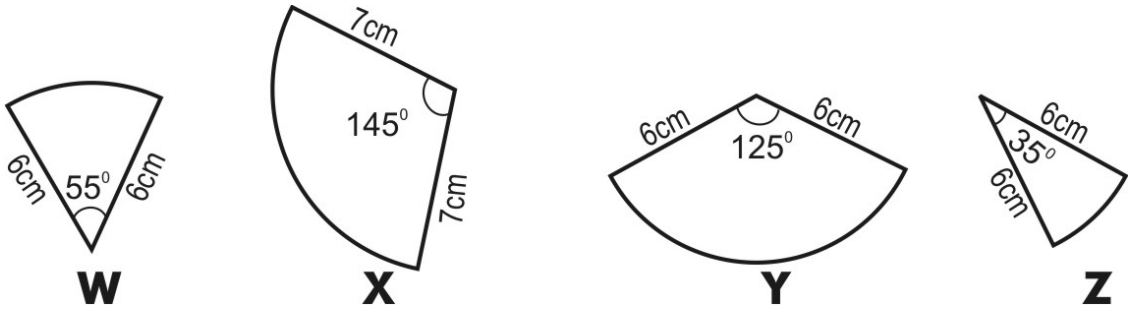
A. $h^2 = a'b'$

B. $b^2 = ca'$

C. $c^2 = a'b'$

D. $a^2 = cb'$

18 Of the pieces shown here, which two could form a semicircle when placed next to each other with their edges touching?



A. Z and W

B. W and Y

C. Y and Z

D. Z and X

19 If MNP is a right-angled triangle with $\widehat{M} = 90^0$, which answer is correct?

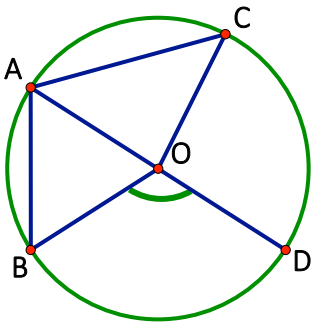
A. *MP = NP.sinP*

B. *MP = NP.sinN*

C. *MP = NP.cosN*

D. *MP = MN.cotgN*

20 Given is the circle with O as the central point, diameter *AD, AC > AB.* Which angle equals to one half value of *BOD* ?



A. *BAO*

B. *OAC*

C. *AOB*

D. *COD*

21 Given are 3 random points *M, N, P*. Which following answer equals to $\overrightarrow{MN}$?

A. $\overrightarrow{MP} + \overrightarrow{NP}$

B. $\overrightarrow{PN} - \overrightarrow{PM}$

C. $\overrightarrow{MP} - \overrightarrow{PN}$

D. $\overrightarrow{PM} - \overrightarrow{PN}$

22 If a + 2b = 5 and c = 3, calculate:

a + 2(b + c) = ……

A. 14

B. 8

C. 12

D. 11

23 Class 5A has 45 pupils, 27 of whom are female. Male pupils are in charge of sweeping the leaves off the school yard. It takes them 1 hour to finish the task. If the whole class did it together, how long would it take to finish the task?

A. 24 minutes

B. 27 minutes

C. 45 minutes

D. 60 minutes

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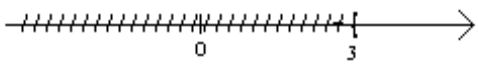
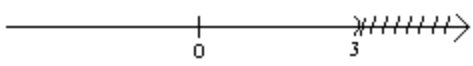
25 Which figure expresses the root set of inequality $2x > 6$?

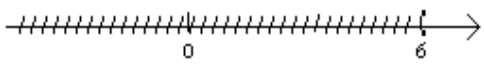
A.



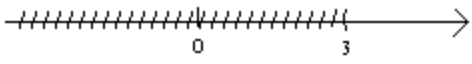
B.



C.



D.



26 The polynomial $A = 12x^3y^2 + 8x^2y^3 + 6y^2$ is divisible by:

A. $2x^2y^2$

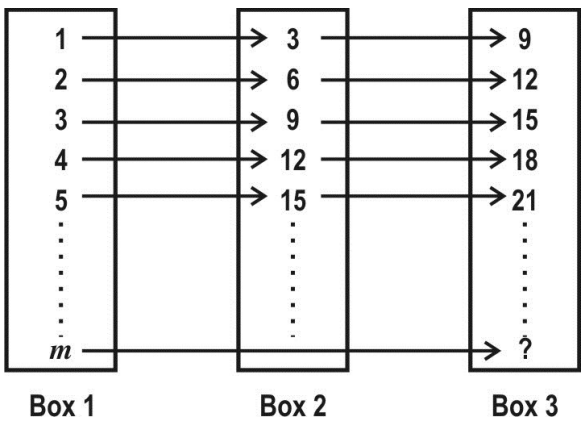
B. $2x^2y$

C. $2xy$

D. $2y^2$

27 A certain common formula converts the numbers in Box 1 to the corresponding ones in Box 2. Another formula then converts the numbers in Box 2 to the corresponding ones in Box 3:

If we wanted to convert a number m in Box 1 directly to the corresponding number in Box 3, we could use the formula:



A. 3m + 2

B. 3m × 3

C. 3(m + 2)

D. m + 2 × 3

28 For any numbers x and y such that x = 70 + y, what can be said about x and y?

A. x = y

B. x < y

C. x > y

D. None of the above can be said as the exact values of x or y are NOT known

29 y + 10 < 10. Which of these is DEFINITELY true?

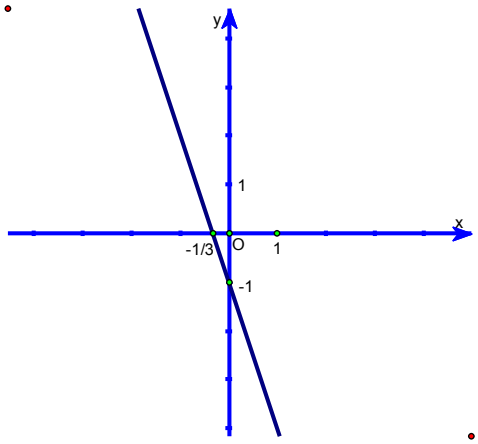
A. y is any negative number.

B. y is a positive number less than 10.

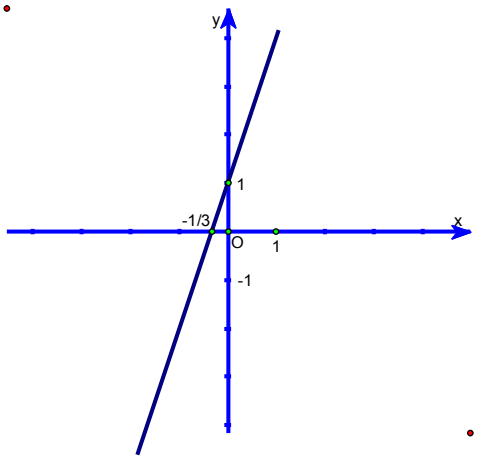
C. y has to be a negative number less than -10.

D. y + 10 cannot be less than 10 for any value of y.

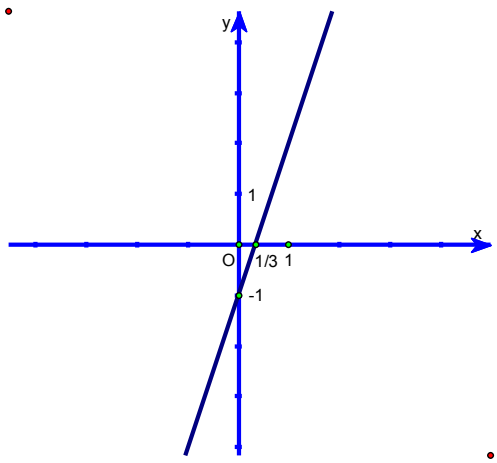
30 Which graph of the line represents the equation y = 3x – 1?



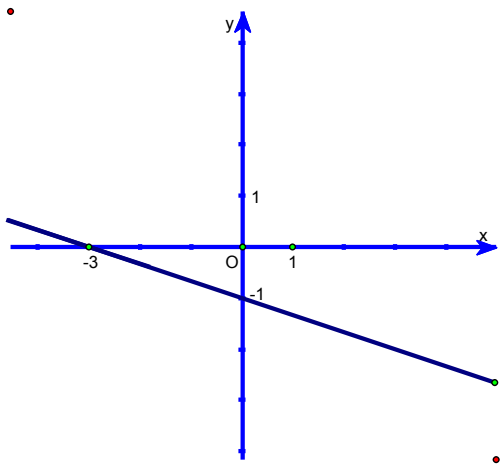
A.



B.



C.



D.

31 The line representing $y = 3x + 2$ will intersect with the line representing which equation?

A. $y = 3x$

B. $y = -3x + 4$

C. $y = 3x + 5$

D. $y = 3x - 1$

32 The distance from A to B is 270 km. A car travels from A to B at a speed of 60 km per hour. On the way, it stops to take a break at C at 3 pm. C is 90 km distance away from B. What time did the car start from A?

A. 12pm

B. 12:30pm

C. 1pm

D. 1:30pm

33 Equation $x^2 - 2x + m - 1 = 0$ has roots when and only when:

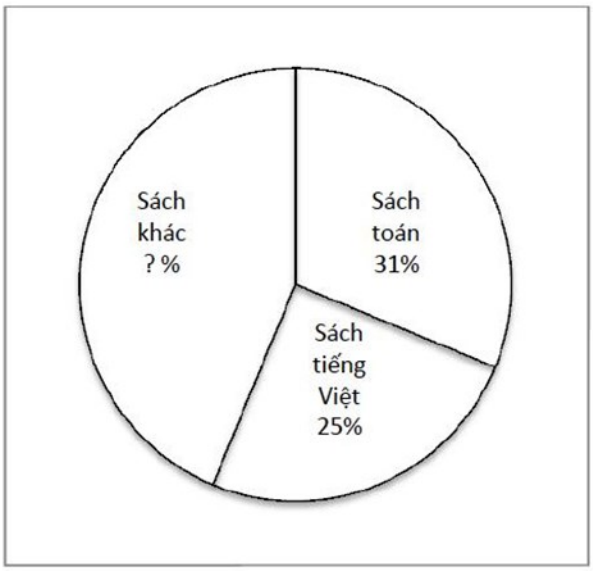
A. $m \geq 2$

B. $m > 2$

C. $m < 2$

D. $m \leq 2$

34 The pie chart shows the proportions books in the library. Of these books, 31% are Maths books, 25% are Vietnamese books. There are 132 books in the library that are neither math nor Vietnamese books. How many math books are there in the library?



A. 31

B. 44

C. 93

D. 132

35 A group of 10 friends have some marbles with them. If they had 3 more marbles, they would be able to distribute the marbles equally amongst themselves. Which of these could be the number of marbles they had?

A. 13 **B.** 20

C. 33 **D.** 47

36 Tú's father is 6 times as old as Tú. Tú's mother is 25 years old. The average age of this family of three is 20 years. How old is Tú?

A. 15 years **B.** 10 years

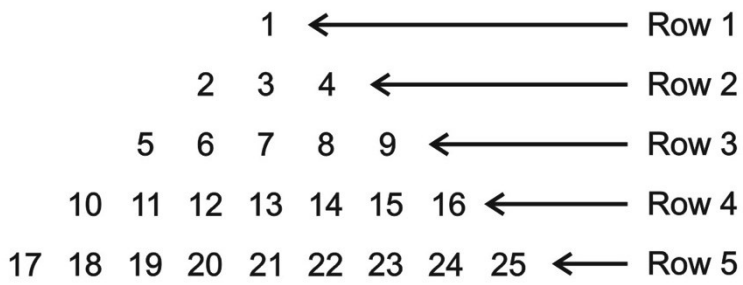
C. 7 years **D.** 5 years

37 A sheet of paper is 0.012 cm thick. Of the following, which would be the height of a stack of 400 sheets of this paper?

A. 0.048 cm **B.** 0.48 cm

C. 4.8 cm **D.** 48 cm

38 Observe the number pattern in the number triangle below.

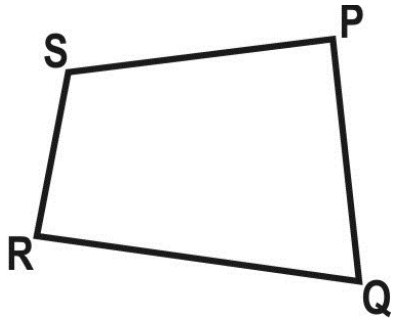


If it is extended, what will be the last number (on the right) in the 9^{th} row?

A. 25 **B.** 36

C. 61 **D.** 81

39 A field PQRS is in the shape of a quadrilateral.



If you walked from Q to P to S to R along the boundary of the field, you would have covered 140 metres. If you walked from P to S to R to Q along the boundary of the field, you would have covered 135 metres.

Based on this, which of the following can you conclude?

A. PQ is 5 m longer than QR

B. QR is 5 m longer than SR

C. PS is 5 m longer than PQ

D. The perimeter of the field is 275 m

40 80 girls and 100 boys appeared for the class 10 board exam from Pratibha School. 25% of the girls and 10% of the boys who appeared got A grades.

What percentage of the total number of students who appeared got A grades?

A. 16,70%

B. 17,50%

C. 25%

D. 35%