CBSE Board
Class VI Mathematics
Term I
Sample Paper 4

Time: 2 ½ hours Total Marks: 80

General Instructions:

1. **All** questions are **compulsory**.
2. **Section A** comprises of **12** questions carrying 1 mark each.
3. **Section B** comprises of **12** questions carrying 2 marks each.
4. **Section C** comprises of **8** questions carrying 3 marks each.
5. **Section D** comprises of **5** questions carrying 4 marks each.

Section A
(Questions 1 to 12 carry 1 mark each)

1. What comes just before 1000000?
   A. 99999
   B. 999999
   C. 9999999
   D. 10000001

2. The successor of –111 is as shown below:
   A. –11
   B. –110
   C. –10
   D. –112

3. $\frac{15}{18}$ is equivalent to which of the following fractions shown below?
   A. $\frac{5}{6}$
   B. $\frac{6}{5}$
   C. $\frac{3}{5}$
   D. $\frac{5}{3}$

4. Which of the following numbers is divisible by 3 but not by 6?

   A. 138

   B. 653

   C. 432

   D. 531

5. $\frac{1}{3}+\left(\frac{-1}{12}\right)=$

   A. 0

   B. $\frac{1}{4}$

   C. $\frac{-1}{9}$

   D. $\frac{1}{9}$

6. How many pairs of adjacent angles does a quadrilateral have?

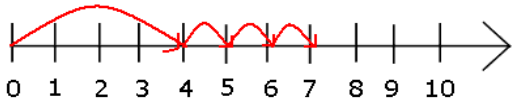
   A. Two

   B. Three

   C. Four

   D. Six

7. What does the following number line represent?



   A. 4 + 3

   B. 0 + 4

   C. 0 + 3

   D. 5 + 3

8. If the number can be divided by the numbers 2 and 3, then that number is divisible by _____.

   A. 6

   B. 9

   C. 11

   D. 5

9. CCCXL is

   A. 300

   B. 340

   C. 360

   D. 380

10. What fraction of a clock wise revolution does the hour hand of a clock turn through when it goes from 3 to 9?

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

   B. $\frac{1}{3}$

   C. $\frac{1}{4}$

   D. $\frac{2}{3}$

11. Which of the following will not represent zero?

   A. $1 + 0$

   B. 0×0

   C. $\frac{0}{2}$

   D. $\frac{10-10}{2}$

12. Name the following shape:

   A. Cube

   B. Cuboid

   C. Cone

   D. Cylinder

Section B

(Questions 13 to 24 carry 2 marks each)

13. Complete the following patterns by using the distributive property of multiplication over addition for whole numbers:

    101 × 33 = 3333

    101 × 333 = 33633

    101 × 3333 = ?

    101 × 33333 = ?

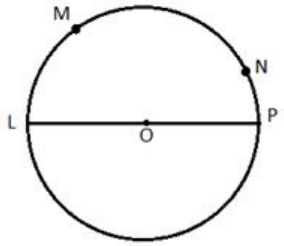
14. Solve the following in the most convenient manner using an appropriate property:

    (74 × 126) – (74 × 32) + (74 × 16)

15. Estimate the sum to nearest thousand: (21397 + 27807 + 42305).

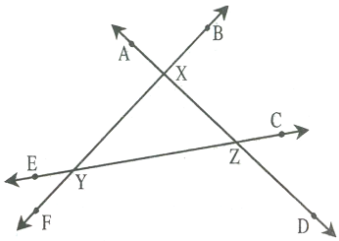
16. Simplify: 4 × [10 + (−12)]

17. Name 4 arcs which can be formed in the given circle.



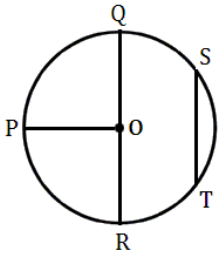
18. Write the biggest number and the smallest number in the group of integers?

19. Write the names of angles which are neither angles of the triangle nor its exterior angles.



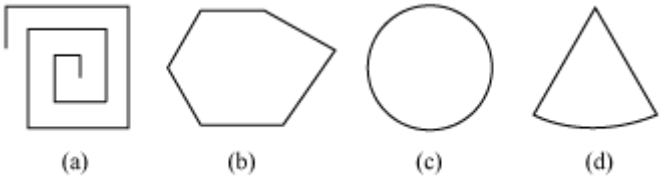
20. The sides of ΔDEF are 5.3 cm, 4.2 cm and 6.6 cm in length. Write the type of the ΔDEF.

21. Name the chords of the circle given below.



22. Solve $4\frac{2}{3}+3\frac{1}{4}$

23. Examine whether the following are polygons. If any one among them is not, say why?

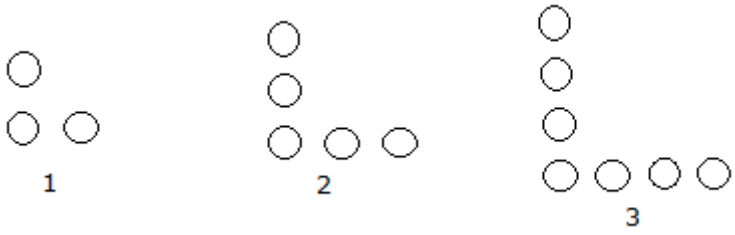


24. A number is divisible by 12. By what other number will that number be divisible?

Section C

(Questions 25 to 32 carry 3 marks each)

25. Look at the following pattern and answer the following question:



How many circles will be there in the 100^{th} step?

26. What is the sum of:

(a) −52, −36, 42, 8, −22 and 46

(b) The largest 4-digit positive integer and smallest 3-digit negative integer?

(c) Two integers between 2 and -5 that are inverses of each other.

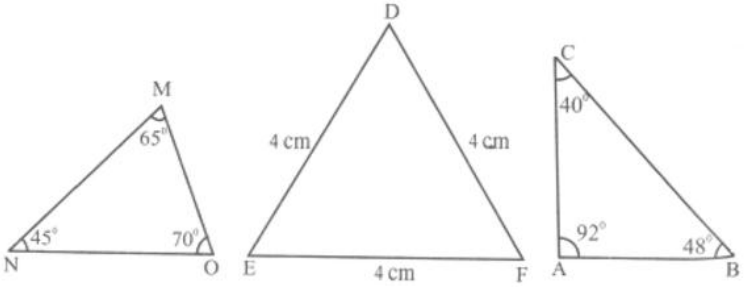
27. Solve (−8 + 12 − 2) using number line.

28. What should be added to $9\frac{2}{3}$ to get 19?

29. Draw a circle of radius 3 cm.

Also show one radius, one chord and one diameter in the circle.

30. From the figures given below, state with reason the type of each triangle.



31. Write these fractions appropriately as additions or subtractions:

32. What is the HCF of two consecutive

(a) Numbers? (b) Even numbers? (c) Odd numbers?

Section D

(Questions 33 to 37 carry 4 marks each)

33. Draw a circle of radius 4.0 cm. Draw a chord PQ passing through the center of the circle. Answer the following questions.

i. What is the chord called?

ii. If a circle into two equal parts, then what are the two formed parts called?

iii. What are the two regions into which it divides the circular region called?

iv. Define a chord.

34. Simplify: $\overline{13+5}+\left[100\div10+\left\{15\times2\left(\overline{13-9}\div\overline{4-1}\right)\right\}\right]$.

35. Determine if 25110 is divisible by 45.

36. Draw number lines and locate the following points on them:

$\frac{2}{5},\frac{3}{5},\frac{8}{5},\frac{4}{5}$

37. Asha and Samuel have bookshelves of the same size partly filled with books.

Asha's shelf is $\frac{5}{6}$ th full and Samuel's shelf is $\frac{2}{5}$ th full. Whose bookshelf is more full? By what fraction?

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Sample Paper 4 – Solution

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Section A

1. Correct answer: B

   The number just before 1000000 is one less than 1000000.

   The required number = 1000000 - 1 = 999999.

2. Correct answer: B

   On a number line, –110 lies next to –111 on the right. Therefore, the successor of –111 is –110.

3. Correct answer: A

   The given fraction is $\frac{15}{18}$

   Dividing the numerator and denominator by 3, we get,

   $\frac{15 \div 3}{18 \div 3} = \frac{5}{6}$

   Thus, $\frac{15}{18}$ is equivalent to $\frac{5}{6}$.

4. Correct answer: D

   The numbers 138 and 432 are divisible by both 2 and 3 and hence are divisible by 6.

   The number 653 is neither divisible by 3 nor by 2 and hence is not divisible by 6.

   Now, consider the number 531.

   The sum of the digits of the number 531 is divisible by 3, so 531 is divisible by 3. However, it is not an even number, so it is not divisible by 2.

   Thus, 531 is divisible by 3 but not by 6.

5. Correct answer: B

   $\frac{1}{3} + \left(\frac{-1}{12}\right) = \frac{4 + (-1)}{12} = \frac{3}{12} = \frac{1}{4}$

6. Correct answer: C

Every quadrilateral has four pairs of adjacent angles.

Example: For the quadrilateral ABCD, the pairs of adjacent angles are

(i) $\angle A, \angle B$ (ii) $\angle B, \angle C$ (iii) $\angle C, \angle D$ (iv) $\angle D, \angle A$.

7. Correct answer: A

Starting from zero, a jump of 4 units is made to the right to reach 4. Then, 3 jumps (each of 1 unit) are taken to the right to reach 7. So, this number line represents 4 + 3.

8. Correct Answer: A

If the number can be divided by the numbers 2 and 3, then that number is divisible by 6.

9. Correct answer: B

CCC stands for 300

And XL stands for 40

So, CCCXL stands for 300 + 40 = 340

10. Correct answer: A

When hour hand goes from 3 to 9 clockwise, it will rotate by 2 right angles or 180º.

Fraction = $\frac{180^o}{360^o} = \frac{1}{2}$

11. Correct answer: A

1 + 0 = 1

$\therefore$ It does not represent zero

12. Correct answer: B

The given shape is cuboid.

Section B

13. Using distributive property of multiplication over addition, we have:
$101 \times 33 = (100 + 1) \times 33 = 3300 + 33 = 3333$

$101 \times 333 = (100 + 1) \times 333 = 33300 + 333 = 33633$

$101 \times 3333 = (100 + 1) \times 3333 = 333300 + 3333 = 336633$

$101 \times 33333 = (100 + 1) \times 33333 = 3333300 + 33333 = 3366633$

14. $(74 \times 126) - (74 \times 32) + (74 \times 16)$

$= 74 \times (126 - 32 + 16)$

$= 74 \times 110$

$= 8140$

15. 21397 can be estimated as 21000
27807 can be estimated as 28000.
42305 can be estimated as 42000.
On adding, we get 21000 + 28000 + 42000 = 91000.

16. $4 \times [10 + (-12)] = 4 \times (-2) = -8$

17. The arcs which can be formed in the given circle are as follows:

arc LMN, arc MNP, arc LNP and arc LMP.

18. There are unlimited number of integers both to the left and the right of zero, hence we cannot determine the biggest or the smallest integer.

19. Angles which are neither angles of the triangle nor its exterior angles are $\angle AXB$, $\angle EYF$ and $\angle CZD$.

20. A triangle with all three sides of different lengths is called a scalene triangle.

$\therefore \Delta DEF$ is a scalene triangle.

21. Line segments QR and ST are the chords of the circle.

22. $4\frac{2}{3}+3\frac{1}{4}=\frac{(3\times4)+2}{3}+\frac{(3\times4)+1}{4}$

$=\frac{14}{3}+\frac{13}{4}$

$=\frac{(14\times4)+(13\times3)}{12}$

$=\frac{56+39}{12}$

$=\frac{95}{12}$

23. (a) It is not a polygon as it is not a closed figure

(b) Yes it is a polygon made of 6 sides.

(c) No it is not made of line segments.

(d) No it is not made of only line segments.

24. Since the number is divisible by 12, it will also be divisible by its factors i.e. 1, 2, 3, 4, 6, 12. Clearly, 1, 2, 3, 4, and 6 are the numbers other than 12 by which this number is also divisible.

Section C

25. Number of circles in step 1 = 3 = 1 × 2 + 1

Number of circles in step 2 = 5 = 2 × 2 + 1

Thus, we can observe that the number of circles is obtained by multiplying the step number by 2 and then adding 1.

Therefore, the number of circles in the 100^{th} step = (100 × 2) + 1 = 201

26. (a) (−52) + (−36) + 42 + 8 + (−22) + 46

= −(52 + 36+22) + (42 + 8+46)

= −110 + 96

= −14

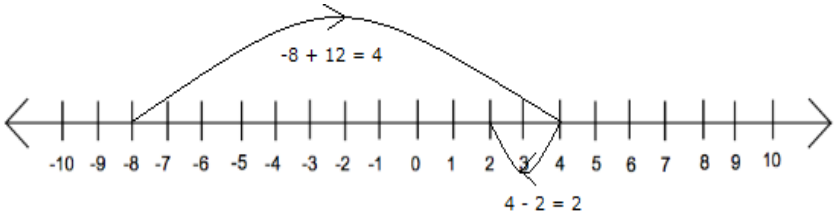
(b) The largest 4-digit positive integer is 9999 and the smallest 3-digit negative integer is −999.

$\Rightarrow$ 9999 + (−999) = 9999 – 999 = 9000

(c) Two integers between 2 and -5 that are inverses of each other are −1 and 1.

The sum of 1 and −1 is 0.

27. To solve using the number line start with -8, move 12 steps right and then back 2 steps as shown below:



So, we reach at 2; therefore, (−8 + 12 − 2) = 2

28. We have:

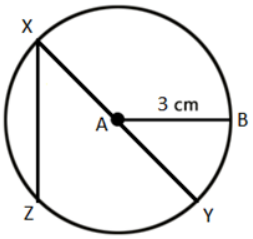
$9\frac{2}{3}=\frac{(9\times3)+2}{3}=\frac{29}{3}$ and $19=\frac{19}{1}=\frac{19\times3}{1\times3}=\frac{57}{3}$

The required number can be calculated by subtracting $\frac{29}{3}$ from $\frac{57}{3}$.

$$\frac{57}{3}-\frac{29}{3}=\frac{57-29}{3}$$
$$=\frac{28}{3}$$
$$=9\frac{1}{3}$$

Hence, $9\frac{1}{3}$ should be added to $9\frac{2}{3}$ to get 19.

29. Mark point A. Take point A as the centre and draw a circle with radius 3 cm using a compass.



The radius is the distance between the centre and any point on the circumference.

∴ AB is the radius of the circle.

The diameter is the chord which divides the circle into two halves.

∴ XY is the diameter of the circle.

A line segment which joins any two points on the circumference of a circle is called a chord.

∴ XZ is a chord of the circle.

30. ΔMNO is an acute angled triangle as all its angles are acute angles.

ΔDEF is an equilateral triangle as all its sides are equal in length.

ΔABC is an obtuse angled triangle as one of its angles measures 92°.

31. Here we may observe that 1st, 2nd, and 3rd circles are representing 5, 3 and 2 shaded parts out of 5 equal parts respectively. Clearly fraction represented by 3rd circle is the difference between the fractions represented by 1st and 2nd circles.

Hence, $\frac{5}{5}-\frac{3}{5}=\frac{2}{5}$

32. (a) HCF of two consecutive numbers 2 and 3 is 1.

(b) HCF of two even numbers 2 and 4 is 2.

(c) HCF of two odd numbers 3 and 5 is 1

Section D

33. i. Diameter.

ii. The two parts into which a circle is divided into are semicircles.

iii. The two regions are called semicircular regions.

iv. Chord: A chord of a circle is a geometric line segment whose endpoints both lie on the circle.

34. $\overline{13+5}+\left[100\div10+\left\{15\times2\left(\overline{13-9}\div\overline{4-1}\right)\right\}\right]$

$= 18+\left[100\div10+\left\{15\times2\left(4\div3\right)\right\}\right]$

$= 18+\left[100\div10+\left\{15\times2\times\frac{4}{3}\right\}\right]$

$= 18+\left[100\div10+\left\{5\times2\times4\right\}\right]$

$= 18+\left[100\div10+40\right]$

= 18 + [10 + 40] = 18 + 50

= 68

35. $45 = 5 \times 9$

Factors of 5 = 1, 5

Factors of 9 = 1, 3, 9

So, 5 and 9 are co-prime numbers.

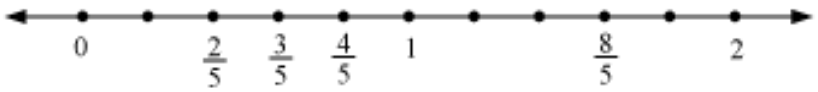
Since last digit of 25110 is 0, so it is divisible by 5.

Sum of digits of 25110 = 2 + 5 + 1 + 1 + 0 = 9.

As sum of digits of 25110 is divisible by 9, so 25110 is divisible by 9.

Since the numbers is divisible by 5 and 9 both, so 25110 is divisible by 45.

36.



37. Fraction of Asha's shelf = $\frac{5}{6}$

Fraction of Samuel's Shelf = $\frac{2}{5}$

Converting these into like fractions,

$\frac{5}{6} = \frac{5}{6} \times \frac{5}{5} = \frac{25}{30}$

$\frac{2}{5} = \frac{2}{5} \times \frac{6}{6} = \frac{12}{30}$

$\frac{25}{30} > \frac{12}{30}$

Clearly, Asha's bookshelf is more full than Samuel's bookshelf.

Difference = $\frac{5}{6} - \frac{2}{5} = \frac{25}{30} - \frac{12}{30} = \frac{13}{30}$