# O. P. JINDAL SCHOOL, SAVITRI NAGAR
## Half Yearly Examination - (2023 – 2024)

**Class / Section: VIII /**              **MM: 80**
**Subject: Mathematics**             **Time: 3:00 Hrs.**
Name: _____             Roll No:_____

*(Fifteen Minutes Extra will be given for reading the Question Paper.)*
*General Instructions:*
  i)   *This question paper contains 44 questions. All questions are compulsory.*
  ii)  *This question paper consist of four sections – A, B, C and D.*
  iii) *Section A comprises 20 questions (Q 1 to 20) of 1 marks each.*
  iv)  *Section B consists 8 questions (Q21 to 28) of 2 marks each.*
  v)   *Section C comprises 8 questions (Q29 to 36) of 3 marks each.*
  vi)  *Section D comprises 6 questions (Q 37 to 40) of 4 marks each and Case study based questions (Q41 to 44) of 1 marks each.*

## (SECTION – A)

**Multiple choice question.**

**Q1.** The additive identity of rational numbers is:

a) 0        b) 1        c) -1        d) 2

**OR**

How many rational numbers are there in between $\frac{3}{4}$ and 1?

a) 0        b) 1        c) 2        d) countless

**Q2.** Find the value of $x$ in equation $7x - 5 = 16$.

a) 1        b) 2        c) 3        d) 4

**Q3.** One angle of a parallelogram is 80°, its adjacent angle is____.

a) 20°        b) 80°        c) 100°        d180°

**OR**

Each angle of a square is____

a) 80°        b) 90°        c) 180°        d) 360°

**Q4.** The probability of getting an ace from a well shuffled deck of 52 cards is

a) $\frac{1}{13}$        b) $\frac{2}{13}$        c) $\frac{1}{26}$        d) $\frac{1}{52}$

**OR**

In the grouped data, each of the group is called:

a) Class interval      b) frequency      c) collection of data      d) grouped frequency distribution

**Q5. Assertion (A)** - The perfect square number out of 2, 3, 4 and 5 is 4.

**Reason (R)** – A perfect square number is a number that can be expressed as the product of an integer by itself or as the second exponent of an integer.

a) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion

b) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

c) assertion is true but the reason is false.

d) assertion is false and reason is true.

**Q6. Assertion (A)** – Rational numbers are not closed under addition

**Reason (R)** – A rational number is a number that is in the form of p/q, where p and q are integers, and q is not equal to 0.

a) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion

b) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

c) assertion is true but the reason is false.

d) assertion is false and reason is true.

## Fill in the blanks-

**Q7.** Number of diagonals in a quadrilateral is _____.

**Q8.** $\sqrt{\frac{144}{169}} =$ _____.

**Q9.** A quadrilateral having exactly one pair of parallel sides is called a _____.

**Q10.** $256 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times$ _____.

**OR**

Prime factorisation of $196 =$ _____.

**Q11.** $\frac{2}{3} \div$ _____ $= 1$.

**Q12.** $(a^m)^n =$ _____.

## Write true and false-

**Q13.** Reciprocal of 5 is $\frac{1}{5}$. (T/F)

**OR**

A negative rational number raised to the power zero equals zero.

**Q14.** In a histogram, we take equal width of the bars and maintain equal gaps between them. (T/F)

**Q15.** The standard form of 657293 is $6.57293 \times 10^5$. (T/F)

**OR**

0.00097 is the usual form of $9.7 \times 10^4$. (T/F)

**Q16.** A parallelogram is a quadrilateral whose opposite sides are unequal. (T/F)

## Short answer type questions-

**Q17.** What is $\frac{2}{3}$ of 27?

**Q18.** What is the number of sides in a heptagon?

**OR**

What is the name of the polygon having 9 sides?

**Q19.** What will be the unit digit of squares of a number 26387?

**OR**

What is the square root of 3025?

**Q20.** Solve for '$x$' : $\dfrac{3x}{8} = 15$

### (SECTION – B)

**Q21.** Simplify: $\dfrac{11}{6} \times \dfrac{-24}{33}$.

**Q22.** Represent $\dfrac{3}{5}$ on the number line.

**Q23.** Evaluate: $\left(\dfrac{3}{5}\right)^{-7} \times \left(\dfrac{8}{5}\right)^{-4}$

**Q24.** What is the sum of angles of a pentagon?

**OR**

Find the measure of each exterior angle of a regular polygon of 9 sides.

**Q25.** A dice is thrown. What is the probability of getting these outcomes?

    a) an odd number.

    b) getting number 4.

**Q26.** Three angles of a quadrilateral are 55°, 110° and 72°. Find the measure of the fourth angle.

**Q27.** Find the square root of 529 by Division method.

**OR**

Find the square root of 64 by Prime Factorisation Method.
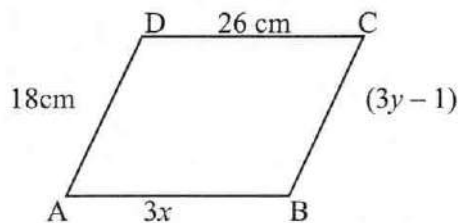
**Q28.** Solve: $6x - 5 = 4x + 7$

**OR**

$3x - 7 = 2$

### (SECTION – C)

**Q29.** The area of rectangle is 610 m². If its breadth is $16\dfrac{2}{3}$ m, what is its length?

**Q30.** Solve for '$x$': $\dfrac{2x - 5}{5x + 2} = \dfrac{3}{22}$

**Q31.** Find '$x$' and '$y$' in the given parallelogram-



**OR**

The measures of two adjacent angles of a parallelogram are in the ratio 3:2. Find the measure of each of the angles of the parallelogram.

**Q32.** The weekly wages (in Rs.) of 30 workers in a factory are –

830, 835, 890, 810, 835, 836, 869, 845, 898, 890, 820, 860, 832, 833, 855, 845, 804, 808, 812, 840, 885, 835, 835, 836, 878, 840, 868, 890, 806, 840.

Using tally marks make a frequency distribution table for the above given data.

**Q33.** Find the value of '$m$' for which $5^m \div 5^{-3} = 5^5$

**Q34.** Find the smallest square number that is divisible by each of the numbers 9, 10, 12 and 15.

<div align="center">OR</div>

Find the square root of 0.019, correct up to two decimal places.

**Q35.** Construct angle by using compass and ruler.

    a) 120°            b) 90°

**Q36.** Write the following numbers in usual form-

    a) $8.329 \times 10^7$

    b) $3.0007 \times 10^9$

<div align="center">

**(SECTION – D)**

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**Q37.** Construct a quadrilateral PQRS in which PQ = 5cm, QR = 7.5cm, RS = PS = 6.5cm and PR = 10cm.

**Q38.** The ages of Amrita and Malti are in the ratio 3:4. Eight years later the sum of their ages will be 44 years. What are their present ages?

**Q39.** Two adjacent angles of a parallelogram are $(4x - 15)^\circ$ and $(5x - 3)^\circ$. Find the measure of all angles of a parallelogram.

<div align="center">OR</div>

In the given figure, ABCD is a parallelogram. Find the measure of $x$ and $y$.
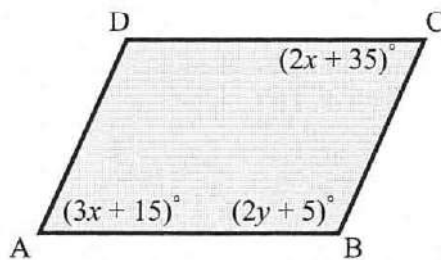


**Q40.** A survey was conducted to ask the students about their favourite after school activity and the information collected was tabulated as shown below:

| Activity | Visit friends | Talk on phone | Play outdoor games | Play indoor games | Watch TV | Read books |
|---|---|---|---|---|---|---|
| Number of students | 175 | 150 | 125 | 75 | 125 | 50 |

Draw a bar graph to represent the above data.

## (CASE-STUDY BASED)

In a Public school, a survey was done to find out the height of the students of class VIII. After survey was completed, following histograms was formed. Look at the histogram and answer the questions-
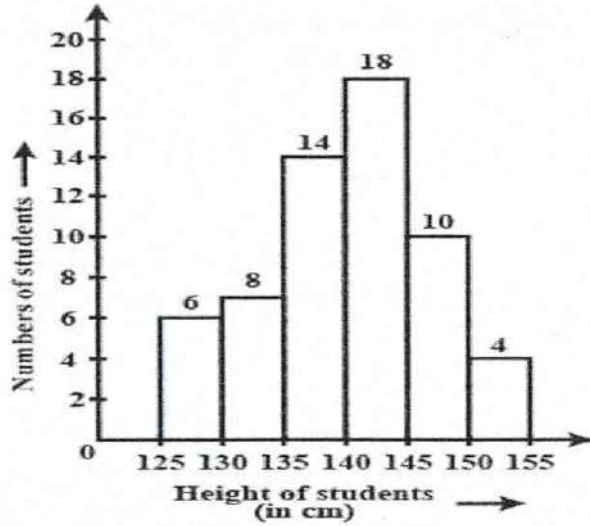


**Q41.** How many students have height more than 135 cm?

    i) 45         ii) 46         iii) 47         iv) 48

**Q42.** Which class interval has the least number of students?

    i) 125 – 130     ii) 130 – 135     iii) 145 – 150     iv) 150 – 155

**Q43.** What is the class size?

    i) 2         ii) 3         iii) 4         iv) 5

**Q44.** How many students have height less than 140 cm?

    i) 28         ii) 29         iii) 14         iv) 32

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