# NEW
# COUNTDOWN

## THIRD EDITION

### A Comprehensive Mathematics Series for Grade 7

**7**

## Model Assessment Papers

**OXFORD**
UNIVERSITY PRESS

# Model Paper 1
# Mid-Year Examination
## Mathematics
## Class VII

Name:_____     Section: _____     Date: _____

**Time: 2 Hours**                                                    **Maximum Marks: 100**

## Read these instructions first:

- Write your name, section, and date clearly in the space provided.

- Answer all questions in Section A, Section B, and Section C.

- Show all your working along with the answer in the space provided.

- Omission of essential working will result in loss of marks.

- At the end of the examination, recheck your work before handing it over.

- The number of marks is given in brackets [ ] at the end of each question.

- This document consists of 10 printed pages.

_____ **For Examiner's Use Only** _____

| Section | A | B | | | | | | C | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | |
| **Max. Marks** | 20 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 10 | 10 | 100 |
| **Marks Obtained** | | | | | | | | | | | | | |
| | | | | | | | | | | | **Percentage** | | |

**Invigilated by:** _____   **Marked by:** _____   **Checked by:** _____

# Section A

Attempt **all** questions                                                                                    **[20 Marks]**

**Q.1.** Each question has four options. Encircle the correct answer.

**I.** What does $\mathbb{U}$ represent in sets?
  A. A rectangular region.
  B. An union of two sets.
  C. An universal set.
  D. An intersection of sets.

**II.** What are the number of digits after a decimal point in a non-terminating decimal?
  A. two
  B. finite
  C. infinite
  D. zero

**III.** How is a rational number represented, if p and q are integers and q≠0?
  A. p + q
  B. p − q
  C. p ÷ q
  D. p × q

**IV.** Which of the following option is correct?
  A. $\frac{-5}{7}$ greater than $\frac{5}{7}$
  B. $\frac{-5}{7}$ less than $\frac{5}{7}$
  C. $\frac{-5}{7}$ equal to $\frac{5}{7}$
  D. $\frac{-5}{7}$ equivalent to $\frac{-10}{35}$

**V.** Round off 123.999 to the nearest whole number. What will be the result?
  A. 123
  B. 123.100
  C. 124
  D. 123.109

**VI.** Which of the following end option is not correct as the end digits of a perfect square number?
  A. 1 or 9
  B. 4 or 6
  C. 00
  D. 3 or 7

**VII.** Which of the following is the largest number?
  A. $10^{-2}$
  B. $10^2$
  C. $10^0$
  D. $(100^0)^{10}$

**VIII.** $x^n \div y^n$ equals to
  A. $\left(\frac{x}{n}\right)^2$
  B. $\left(\frac{y}{x}\right)^n$
  C. $xy^{2n}$
  D. $\frac{x}{y}$

**IX.** If $\mathbb{U} = \{1, 2, 3, \dots 10\}$, A = {2, 4, 5, 7} and B = {4, 5, 9, 10}, then which of the Venn diagram is correct?

  A.



  B.



  C.



  D.
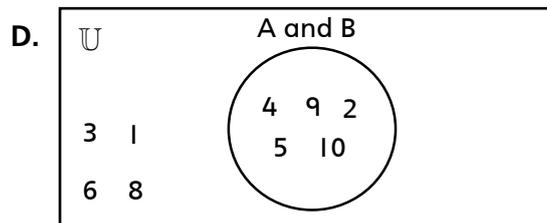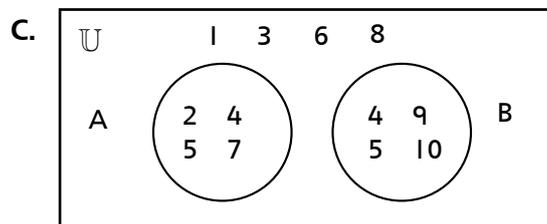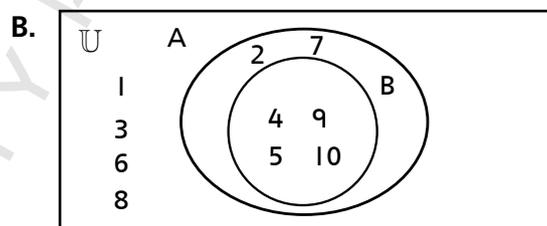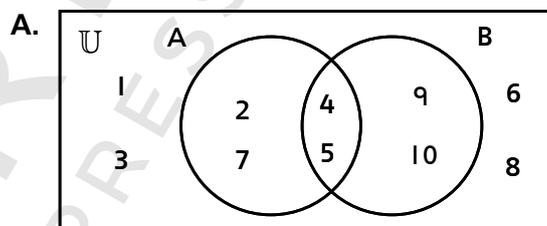


**X.** What is the additive inverse of a rational number?
  A. 0
  B. 1
  C. number itself with a negative sign.
  D. reciprocal of the number.

**XI.** On which of the following General Sales Tax is paid?

    **A.** property

    **B.** selling price of items

    **C.** vehicles

    **D.** income

**XII.** What is the relation between temperature and hotness of a body?

    **A.** inversely proportion

    **B.** not proportional

    **C.** directly proportional

    **D.** none of the above

**XIII.** How is the speed of a moving body expressed?

    **A.** distance ÷ time

    **B.** distance × time

    **C.** distance + time

    **D.** distance − time

**XIV.** If the area of a square field is 196 m², what is its breadth?

    **A.** 16 m

    **B.** 14 m

    **C.** 98 m

    **D.** 392 m

**XV.** Which of the following option, represents the square root of 100?

    **A.** 2 × 2 × 5 × 5

    **B.** 2 × 5

    **C.** 2 × 5 × 0

    **D.** 10 × 10

**XVI.** If a square gaming board has 121 squares, how many squares are there in a row?

    **A.** 21

    **B.** 91

    **C.** 11

    **D.** 19

**XVII.** Which of the following rational numbers can be expressed in recurring decimals?

    **A.** $\frac{7}{10}$

    **B.** $\frac{2}{5}$

    **C.** $\frac{15}{4}$

    **D.** $\frac{9}{11}$

**XVIII.** Which term is used for two sets having no common elements?

    **A.** Empty sets.

    **B.** Disjoint sets.

    **C.** Universal sets.

    **D.** Subsets.

**XIX.** 15 masons complete a wall in 2 days. In how many days 10 masons will complete the same wall?

    **A.** 3 days.

    **B.** $\frac{11}{3}$ days.

    **C.** 4 days.

    **D.** $\frac{11}{2}$ days.

**XX.** Which of the following statement is true for net selling price?

    **A.** Reduction on the price.

    **B.** Marked price − discount

    **C.** Discount offered by the shopkeeper.

    **D.** Selling price − Loss

**[Total: /20]**

# Section B

Attempt **all** questions                                                                          **[30 Marks]**

**Q.2.**

a)   If A = {2, 3, 4, 5, 6, 7 }, B = {3, 5, 7, 8}, C = {3, 5, 7, 8, 20, 30, 40}, find:        **[  /3]**

(i)   A − B = _____

(ii)   A ∩ B = _____

(iii)   B ∪ C = _____

b)   Find the universal set if P = {2, 6, 9, 10} and P' = {1, 3, 4, 5, 7, 8}        **[  /2]**

_____

_____

_____

_____

**[Total:  /5]**

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**Q3.**

a)   Represent − $\frac{13}{4}$ on a number line.        **[  /2]**

_____

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_____

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b)   Arrange the given rational numbers in descending order.        **[  / 3]**

$\frac{-13}{4}, \frac{6}{-15}, \frac{-6}{-4}, \frac{17}{30}$

_____

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**[ Total:  /5]**

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**Q4.**

a)   Express $\frac{-16}{125}$ as a decimal number.        **[  /2]**

_____

_____

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_____

b) Express $\frac{0.0058}{17.4}$ as a common fraction. **[ /3]**

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**[Total: /5]**

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**Q5.**

a) Adil has 1521 marbles. He wants to keep them in some boxes such that each box contains as many marbles as the number of boxes. Find the required number of boxes. **[ /3]**

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b) Find the smallest number by which 675 should be multiplied in order to make it a perfect square. **[ /2]**

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**[Total: /5]**

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**Q6.**

a) Express $(4^{-3})^2$ with positive exponent. **[ /2]**

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b) How much would I pay if I am given a discount of 5% on an article marked at Rs 80? **[ /3]**

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**[Total: /5]**

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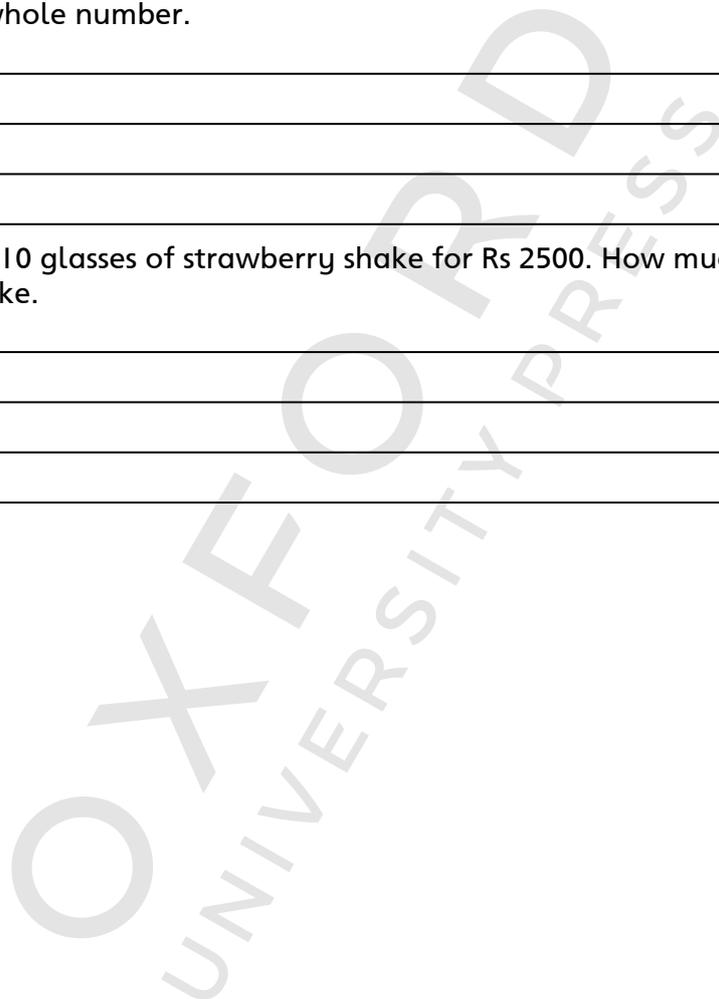
**Q7.**

a) If $5^2$ sacks of rice weigh $5^4$ kg, what will be the weight of one sack of rice? Give your answer as a whole number. **[ /2]**

_____

_____

_____

_____

b) Abid ordered 10 glasses of strawberry shake for Rs 2500. How much would he pay for 4 glasses of shake. **[ /3]**

_____

_____

_____

_____

**[Total: /5]**

# Section C

Attempt **all** questions [50 Marks]

**Q8.**

a) Simplify:

$$\left(\frac{-7}{8} \times \frac{-4}{21}\right) + \left(\frac{2}{5} \times \frac{-5}{9}\right) - \left(-\frac{3}{13} \times \frac{-26}{15}\right)$$ [ /4]

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b) The sum of the squares of two positive whole numbers is 290. If one of the numbers is 11, find the other number. [ /4]

_____

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c) Ahsan had 7 cats. Each weighed $2\frac{3}{5}$ kg. How much did the cats weigh in total? [ /2]

_____

_____

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_____

[Total:  /10]

==========================================================

**Q9.**

a) A company divided the profit of Rs 4608 among 4 shareholders in the ratio of 3: 5: 7: 9. What would be the share of each shareholder? [ /4]

_____

_____

_____

_____

b) Number of favourite pets of a group of children is given below.

| Pets | Rabbit | Cat | Dog | Goldfish | Parrot |
|---|---|---|---|---|---|
| No. of children | 6 | 8 | 10 | 5 | 7 |

i) Represent the data in a bar graph. **[ /3]**

ii) Answer the following questions:

- Which is the most liked pet? _____ [ /1]
- Which two pets make a group of 13 children? _____ [ /1]
- What is the total number of children who participated in this activity? [ /1]

  _____

**[Total: /10]**

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**Q10.**

a) Sabir deposited some amount in the bank for 5 years at 6% per annum. He earn simple interest Rs144 more than the simple interest on the same sum for 3 years at 8% per annum. Find the amount he deposited in the bank. **[ /5]**

b) To visit her aunt Insia traveled 6.45 km by a train and 5.35 km by a car. How many kilometers was Insia's journey in total? Express your answer in whole number. **[ /2]**

c) Draw the following lines. **[ /3]**
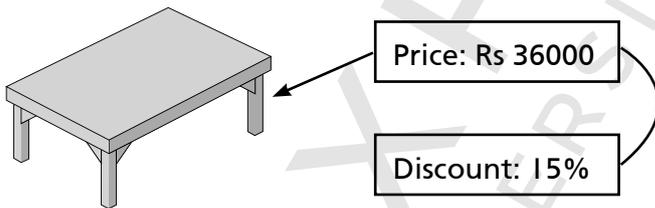
  i) A line AB.



  ii) A line segment PQ.



  iii) A ray LM.

[Total: /10]

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Q11.

  a) A man purchased 50 notebooks at Rs 50 each and sold them at Rs 55 each. How much total profit and the profit per cent did he earn? **[ /4]**

  _____
  _____
  _____
  _____
  _____
  _____

  b) How much would a customer pay for the following teakwood table? **[ /4]**

  Price: Rs 36000

  Discount: 15%

  _____
  _____
  _____
  _____
  _____

  c) Find the difference between $1\frac{3}{16}$ and 1.632 up to 4 decimal places. **[ /2]**

  _____
  _____
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[Total: /10]

**Q12.**

a)   If A = {5, 7, 9, 11, 13, 15}

B = {3, 7, 11, 15}

C = {1, 2, 3, 4, 6, 8, 10}

Find the following sets and represent each through a Venn diagram.          **[ /6]**

i)  A ∩ B        ii)  B ∪ C        iii)  A − B

b)   Show that $\left(\frac{-9}{17} \times \frac{17}{27}\right) \times -\frac{8}{5} = \frac{-9}{17} \times \left(\frac{17}{27} \times \frac{8}{5}\right)$. Name the property satisfied here.          **[ /4]**

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**[Total:   /10]**

# Model Paper 2
# Mid-Year Examination
## Mathematics
## Class VII

Name:_____     Section: _____     Date: _____

**Time: 2 Hours**                                                        **Maximum Marks: 100**

## Read these instructions first:

- Write your name, section, and date clearly in the space provided.

- Answer all questions in Section A, Section B, and Section C.

- Show all your working along with the answer in the space provided.

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_____ **For Examiner's Use Only** _____

| Section | A | B | | | | | | C | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | |
| Max. Marks | 20 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 10 | 10 | 100 |
| Marks Obtained | | | | | | | | | | | | | |
| | | | | | | | | | | | Percentage | | |

**Invigilated by:** _____  **Marked by:** _____  **Checked by:** _____

# Section A

Attempt **all** questions                                                                                              [20 Marks]

**Q.1.** Each question has four options. Encircle the correct answer.

**I.** Which of the following represents the associative property of intersection?
  **A.** $(A \cap B) \cap C = A \cap (B \cap C)$
  **B.** $(A \cap B) \cap C = (C \cap B) \cup A$
  **C.** $(A \cap B) \cap C = A \cap (B \cup C)$
  **D.** $(A \cap B) \cap C = (A \cap B) \cup (A \cap C)$

**II.** Which number gives $\frac{-1}{5}$ when added to $\frac{-3}{5}$ ?
  **A.** $\frac{2}{5}$
  **B.** $\frac{-8}{25}$
  **C.** $\frac{8}{25}$
  **D.** $\frac{2}{25}$

**III.** What does a number become, when added to its additive inverse?
  **A.** 1
  **B.** A negative number
  **C.** 0
  **D.** Double of the number

**IV.** Which of the following rational numbers can be expressed in recurring decimals?
  **A.** $\frac{7}{10}$
  **B.** $\frac{2}{5}$
  **C.** $\frac{15}{4}$
  **D.** $\frac{9}{11}$

**V.** What is the value of $(15^5 \times 15^3) \div 15^7$?
  **A.** $15^8$
  **B.** $15^{15}$
  **C.** 15
  **D.** $15^0$

**VI.** What does a price tag indicate?
  **A.** Cost price
  **B.** Discount
  **C.** Overhead cost
  **D.** Loss or profit

**VII.** Ali rounds off 83.9457 to three decimal places. What will he get?
  **A.** 83.95
  **B.** 83.946
  **C.** 83.945
  **D.** 83.9

**VIII.** What is the relation between set A and set B?



  **A.** Equal sets
  **B.** Super sets
  **C.** Overlapping sets
  **D.** Equivalent sets

**IX.** Which of the following is a perfect square?
  **A.** 72
  **B.** 448
  **C.** 196
  **D.** 160

**X.** The ratio of saving among three friends is as follows.
  Ahad: Asif = 4: 5;  Asif: Bilal = 5: 7
  What will be Ahad: Asif: Bilal?
  **A.** 4: 10: 7
  **B.** 4 : 5 : 7
  **C.** 4 : 1 : 7
  **D.** 2: $\frac{5}{2}$ : $\frac{7}{2}$

**XI.** What is the square root of $10^2 \times 5^2 \times 3^2$?
  **A.** 22500
  **B.** 134
  **C.** 54
  **D.** 150

**XII.** If a shopkeeper buys 5 comic books in Rs 525 and sells each of them in Rs 120, then which of the following statement is correct?
  **A.** He earns a profit of Rs 75
  **B.** He bears a loss of Rs 125
  **C.** He has given a discount of Rs 81
  **D.** He earns no profit no loss

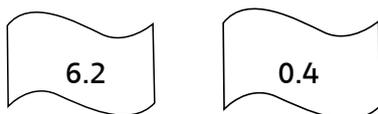**XIII.** Ahmed deposited Rs 55 000 in a bank. Which of the following is the correct formula for calculating interest?

    **A.** I = (P × R × T) × 100

    **B.** I = (P × R × T) ÷ 100

    **C.** I = (P + R + T) × 100

    **D.** I = (P + R + T) ÷ 100

**XIV.** If P = {1, 2, 3 … 50} and Q = {1, 3, 5, 7 … 49}, what is P − Q?

    **A.** {1, 2, 3, … 50}

    **B.** {2, 4, 6, 8, … 50}

    **C.** {1, 2, 4, 6, 8, … 50}

    **D.** {1, 3, 5, 7, 9, …49}
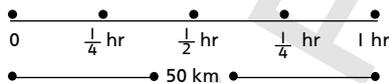
**XV.** Look at the decimal number cards. What will be the product of the numbers to the nearest whole number?

    **A.** 25

    **B.** 7

    **C.** 2

    **D.** 248



6.2    0.4

**XVI.** If a man covers 50 km in one hour, how much will he cover in 1/2 hour?

    **A.** 100 km

    **B.** 25 km

    **C.** $50\frac{1}{2}$ km

    **D.** 5 km



**XVII.** What is the value of $\left(\frac{1}{4}\right)^2$?

    **A.** $\frac{2}{5^2}$

    **B.** $\frac{1}{4^2}$

    **C.** $\frac{2}{16}$

    **D.** $\frac{1}{8}$

**XVIII.** Sana and Nida have 4.9 m and 0.01 m long ribbons respectively. How many metres they need to make it 5 m long altogether?

    **A.** 1.9 m

    **B.** 0.9 m

    **C.** 0.1 m

    **D.** 0.09 m

**XIX.** What will be the unit digit of a number whose perfect square ends in 6?

    **A.** 4 or 6

    **B.** 2 or 4

    **C.** 6 only

    **D.** 4 only

**XX.** A worker completed a wall in 3 days working 5 hours a day. If he works 8 hours a day, he will need

    **A.** more number of days

    **B.** same number of days as before

    **C.** less number of days

    **D.** Double of the number of days

**[Total:  /20]**

# Section B

Attempt **all** questions                                                    **[30 Marks]**

**Q2.**

a)   Express $\frac{28}{-48}$ in its standard form.                                        **[ /2]**

_____

_____

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_____

_____

b)   Evaluate 3.52 × 1.2. Express your answer as a fraction.                     **[ /3]**

_____

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_____

**[Total:   /5]**

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**Q3.**

a)   Express $59\frac{7}{11}$ in recurring decimal from.                                **[ /2]**

_____

_____

_____

_____

_____

b)   Simplify: $\left[\left(\frac{-4}{7}\right)^4 \times \left(\frac{-4}{7}\right)^2\right] \div \left(\frac{-4}{7}\right)^5$                          **[ /3]**

_____

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**[Total:   /5]**

**Q4.**

a) Asalm went to the market to buy some sugar. There he saw a 7 kg sack of sugar with a price tag. What will be the cost of 11 kg of sugar? **[ /3]**
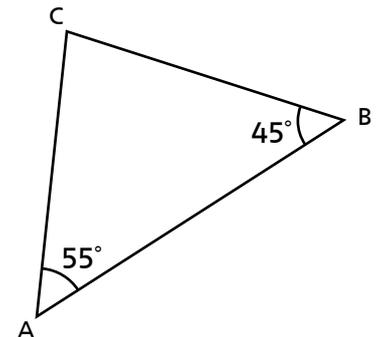
_____

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7 kg sugar — Rs 560
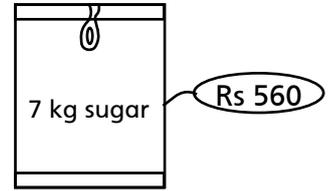
b) What will be the 72 % of cost of 11 kg sugar? Express your answer in decimals. **[ /2]**

_____

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**[Total Marks:   /5]**

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**Q5.**

a) Calculate the unknown angle in the given triangle. **[ /2]**

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_____

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_____

45°   55°

b) A man owns a car showroom worth Rs 35,000,000. How much property tax would he pay in 2 years if the tax rate is 6% per annum? **[ /3]**

_____

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_____

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_____

**[Total:   /5]**

**Q6.**

a) If A is the set of the names of the days in a week. B is a set of first, third, and fifth days of the week. What will be A∩B? **[ /2]**

_____

_____

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b) Round off 2.587 to hundredth place on the given number line. **[ /3]**



2.50                                                      2.60

_____

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_____

**[Total:   / 5]**

**Q7.**

a) Rida has some gold worth Rs 100000. What amount of zakat does she have to pay? **[ /2]**

_____

_____

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b) Anum and Fizza pick two fraction cards and multiply them. What will be the sum of their products? **[ /3]**

$$\dfrac{-5}{7} \qquad \dfrac{3}{10} \qquad \dfrac{4}{13} \qquad \dfrac{-13}{28}$$

Anum                        Fizza

_____

_____

_____

_____

_____

**[Total:  /5]**

# Section C

Attempt **all** questions **[50 Marks]**

**Q8.**

a) Fahad is travelling from Karachi to Lahore by car. He travels 445.30 km in 7 hours. How much distance will he travel in 2 hours? Find your answer up to four decimal places. Is it a terminating or non-terminating decimal? **[ /5]**

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b) Area of a square table is 8100 cm². What is the length of one side of the table? **[ /3]**

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c) Identify the greater number. **[ /2]**

i) $2^6$ or $6^2$      ii) $2^{10}$ or $10^2$

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**[Total:  /10]**

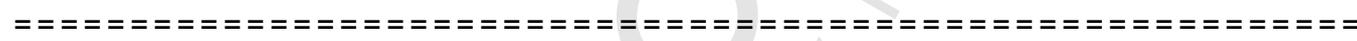==================================================================

**Q9.**

a) Saira decided to paint 5 landscapes. She spent $4\frac{1}{5}$ hours on each painting. How much time did she spend painting the landscapes? **[ /3]**

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_____

b) Verify the property (a × b) × c = a × (b × c) by taking $a = \frac{1}{2}$, $b = \frac{4}{5}$, and $c = \frac{3}{5}$. Also name the property. **[ /3]**

_____

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c) Ahmed deposited Rs 7000 in a bank and received Rs 1050 interest in 3 years. Find the rate of interest per annum. **[ /4]**

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_____

**[Total:  /10]**

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**Q10.**

a) Ashir is a project manager and hires 40 men to finish a project in 15 days. Due to some reason 15 men do not turn up. In how many days remaining number of men will finish the project now? What type of variation exists between the number of men and number of days? **[ /5]**

_____

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_____

b) Write the next three rational numbers to complete the pattern. **[ /3]**

$\frac{4}{-5}$ ,  $\frac{8}{-10}$ ,  $\frac{12}{-15}$ ,  $\frac{16}{-20}$

_____

_____

_____

_____

_____

c)  If two angles of a triangle are 35° and 107°, find the third angle.  **[ /2]**

_____

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_____

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_____

_____

**[Total:   / 10]**

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**Q11.**

a)  In a school, 80 students are studying Science or Maths, or both. The percentage of students opted for the subjects is given in the following table. How many students are studying both?  **[ /5]**

|   | Subject | Percentage |
|---|---------|------------|
| 1 | Science | 30 % |
| 2 | Maths | 55 % |
| 3 | Science and Maths both | |

_____

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b)  Arsal paid a gas bill of Rs.790.75 out of a 1000 rupee note. How much change should he have received?  **[ /2]**

_____

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c)  Write a rational number in which numerator is 5 less than −7 × 11 and denominator is 3 greater than  12 ÷ 2.  **[ /3]**

_____

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**[Total:   /10]**

**Q12.**

a) Mrs Rehman bought 21 m cloth to make 15 mats of equal size. How long each mat would be? Express your answer in decimals.                                          **[ /3]**

_____

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_____

b) Ahmed wanted to arrange some chairs in a square room. He was able to accommodate them in such a way that each row and each column had 9 chairs and 5 chairs were left behind. What was the total number of chairs?                                          **[ /3]**

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c) Find the number which multiplied by itself gives 6084.                          **[ /4]**

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**[Total:    /10]**
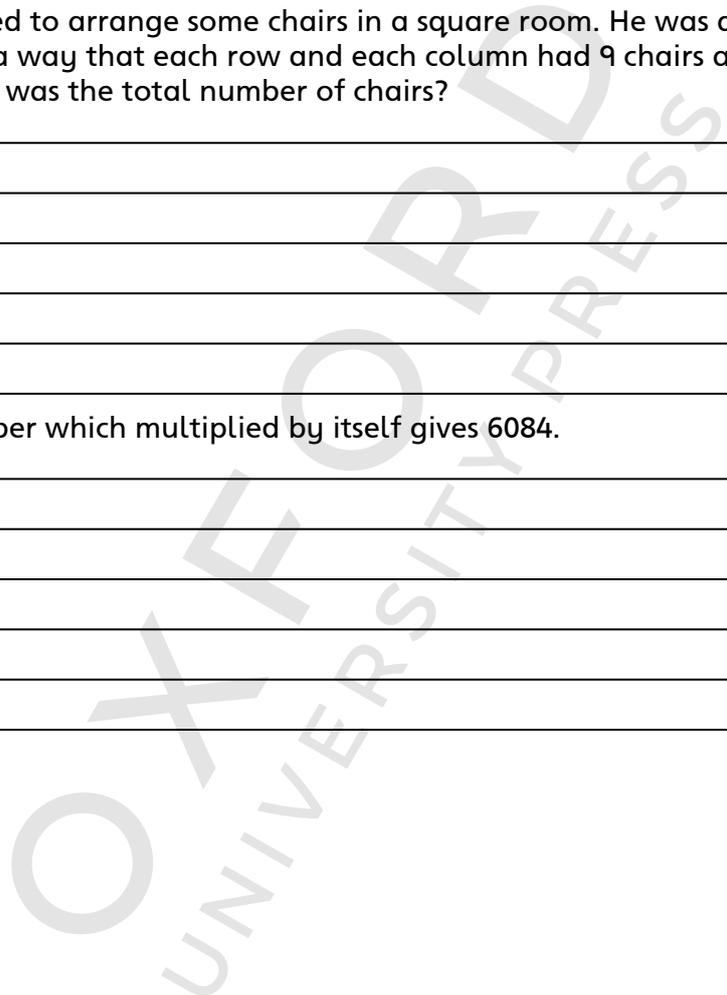
# Model Paper 1
# Annual Examination
## Mathematics
## Class VII

Name:_____     Section: _____     Date: _____

**Time: 2 Hours**                                    **Maximum Marks: 100**

## Read these instructions first:

- Write your name, section, and date clearly in the space provided.

- Answer all questions in Section A, Section B, and Section C.

- Show all your working along with the answer in the space provided.

- Omission of essential working will result in loss of marks.

- At the end of the examination, recheck your work before handing it over.

- The number of marks is given in brackets [ ] at the end of each question.

- This document consists of 12 printed pages.

_____ **For Examiner's Use Only** _____

| Section | A | B | | | | | | C | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | |
| **Max. Marks** | 20 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 10 | 10 | 100 |
| **Marks Obtained** | | | | | | | | | | | | | |
| | | | | | | | | | | | **Percentage** | | |

**Invigilated by:** _____  **Marked by:** _____  **Checked by:** _____

# Section A

Attempt **all** questions                                                                                    [20 Marks]

**Q1.**  Each question has four options. Encircle the correct answer.

**I.**  What are the like terms in $5a(5 - 3b)$ and $4(ab + a^2)$?
- **A.**  $25a$ and $4a^2$
- **B.**  $-15ab$ and $4ab$
- **C.**  $25a$ and $4ab$
- **D.**  $-15ab$ and $4a^2$

**II.**  What is the sum of measures of two complementary angles?
- **A.**  $90°$
- **B.**  $180°$
- **C.**  $36$
- **D.**  $270°$

**III.**  Which term is used for the difference between the greatest and smallest data value?
- **A.**  Upper limit
- **B.**  Lower limit
- **C.**  Range
- **D.**  Frequency

**IV.**  Which option is correct for the union of two sets?
- **A.**  It consists of only common members of the two sets
- **B.**  It has all the members of both the sets
- **C.**  It has only the members of A
- **D.**  It has only the members of B

**V.**  What is the value of $\frac{2}{9} + \frac{1}{3}$ ?
- **A.**  $\frac{3}{27}$
- **B.**  $\frac{5}{9}$
- **C.**  $\frac{3}{12}$
- **D.**  $\frac{5}{18}$

**VI.**  Which property is represented in $a \times b = b \times a$?
- **A.**  Associative property of multiplication
- **B.**  Distributive property of multiplication
- **C.**  Commutative property of multiplication
- **D.**  Multiplicative identity

**VII.**  What are the factors of $ab - ca$?
- **A.**  $a(b + c)$
- **B.**  $(a - c)(b - a)$
- **C.**  $(a + b)c$
- **D.**  $a(b - c)$

**VIII.**  When two parallel lines are cut by a transversal, which two angles sum up to $180°$?
- **A.**  Interior angles
- **B.**  Corresponding angles
- **C.**  Alternate angles
- **D.**  Vertically opposite angles
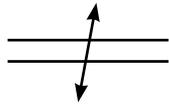
**IX.**  Which one is true for the congruent figures?
- **A.**  They have same shape and different size
- **B.**  They have different shape and same size
- **C.**  They have same shape and same size
- **D.**  None of the above

**X.**  What is the value of $-\frac{16}{25} \times \frac{15}{32}$
- **A.**  $\frac{4}{7}$
- **B.**  $-\frac{3}{10}$
- **C.**  $-\frac{4}{7}$
- **D.**  $\frac{3}{10}$

**XI.**  Which is the greatest rational number in $\frac{7}{14}, \frac{3}{9}, \frac{12}{16},$ and $\frac{10}{13}$ ?
- **A.**  $\frac{7}{14}$
- **B.**  $\frac{10}{13}$
- **C.**  $\frac{3}{9}$
- **D.**  $\frac{12}{16}$

**XII.**  What would 7.2 ④ 9 5 become when rounded off to the encircled digit?
- **A.**  7.24
- **B.**  7.25
- **C.**  7.3
- **D.**  7.2595
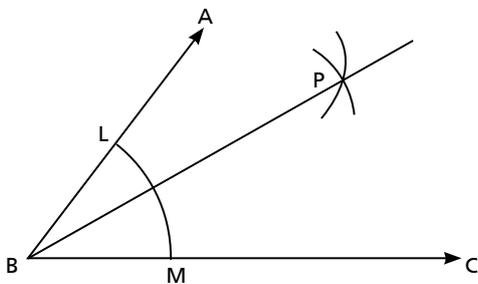
**XIII.** If a = 8, and b = 3, what will be the value of $a^2 - b^2$?

    **A.** 5

    **B.** 73

    **C.** −55

    **D.** 55

**XIV.** What will be the factors of $pq^3 - pq^2$?

    **A.** $pq^2(q - 1)$

    **B.** $pq^3(1 - pq^2)$

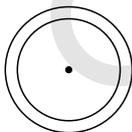    **C.** $pq(q^2 - q)$

    **D.** $q^2(pq - p)$

**XV.** What geometric construction is shown in the following diagram?



    **A.** $\overline{PB}$ is perpendicular to $\overline{BC}$

    **B.** $\overline{AB}$ is an angle bisector

    **C.** $\overline{PB}$ is an angle bisector

    **D.** $m \angle ABC = \frac{1}{2} m \angle PBC$

**XVI.** Which of the following options is true for concentric circles?

    **A.** They have same centre

    **B.** They have no common centre

    **C.** They have equal diameters

    **D.** They have same radius



**XVII.** What is $\overline{DE}$ in the given parallelogram?
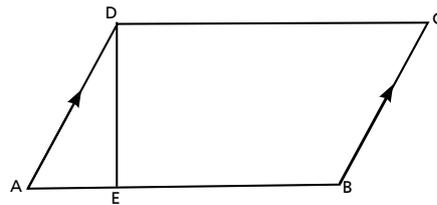


    **A.** Base

    **B.** Altitude

    **C.** Diagonal

    **D.** Side

**XVIII.** What are the length, breadth, and height of a cube called?

    **A.** Area

    **B.** Volume

    **C.** Dimensions

    **D.** Surface area

**XIX.** $\frac{21}{8}$ is same as

    **A.** 2

    **B.** 26.25

    **C.** 0.2625

    **D.** 2.625

**XX.** $144x^2 + 72x + 9 =$

    **A.** $(12x - 3)^2$

    **B.** $(12x + 3)^2$

    **C.** $(144x + 9)^2$

    **D.** $(12x + 3)(12x - 3)$

**[Total: /20]**

# Section B

Attempt **all** questions                                                    **[30 Marks]**

**Q2.**

a)  Ahad bought a square cardboard sheet to make a doll house for his sister. The area of the sheet is 324 m². What will be the length of one side of the sheet?          **[ /3]**
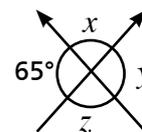
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b)  Adil sold out his old bed set according to the price given below. Did he earn a profit or a loss? Fill in the appropriate boxes.          **[ /2]**

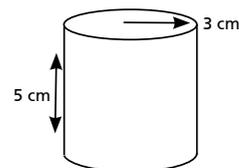| Items | Cost price | Selling price | Profit | Profit % | Loss | Loss % |
|-------|-----------|---------------|--------|----------|------|--------|
| Bed Set | Rs 45500 | Rs 30500 | | | | |

_____

_____

_____

_____

_____

**[Total:  /5]**

==========================================================

**Q3.**

a)  Find the value of angles $x$, $y$, and $z$ in the given diagram.          **[ /3]**

_____

_____

_____

_____

_____

b)  What is the volume of the cylinder given below ?          **[ /2]**

_____

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**[Total:  /5]**

**Q4**.

a) Simplify and find the multiplicative identity of $\frac{4}{8} \times \frac{3}{5} \div \frac{12}{25}$                                [ /2]

_____

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b) Calculate the value of expression for given values of $x$.                                [ /3]

| $x$ | $10x - 3$ |
|---|---|
| 10 | |
| − 5 | |
| − 12 | |

[Total:  /5]

=========================================================

**Q5.**

a) Abid has a saving of Rs 10700 and wants to purchase a bicycle. The marked price of the bicycle is  Rs 15250. The shopkeeper offered a 20 % discount on the marked price. Does Abid have enough money to buy the bicycle? If not, how much more money does he need?
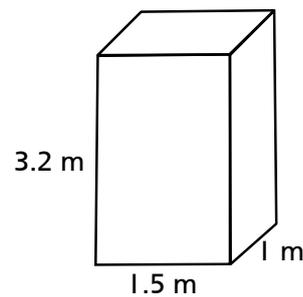
[ /3]

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b) A survey of class VII students was done, asking their favourite pets. The data was organised by tally marking in the following table. Complete the table by filling the empty boxes.                                [ /2]
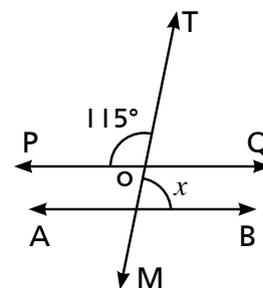
| Pet animals | Tally Marks | Number of students |
|---|---|---|
| Cat | | 15 |
| Dog | ⅏ ⅏ | |
| Rabbit | | 4 |
| Parrot | ⅏ \| | |

[Total:  /5]

**Q6.**

a)   Find the surface area of the given cuboid.                                    **[  /2]**

_____

_____

_____

_____     3.2 m

_____

_____              1 m

_____          1.5 m

b)   Find the value of $x$ if AB ‖ PQ.                                            **[  /3]**

_____

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**[Total:  /5]**

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**Q7.**

a)   Rs 8940 are divided among 3 brothers in the ratio 5 : 6 : 9. How much does each
brother get?                                                                      **[  /3]**

_____

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b)   Expand $(\frac{2}{3} x + 1)^2$ using first identity.                         **[  /2]**

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**[Total: /5]**

# Section C

Attempt **all** questions **[50 Marks]**

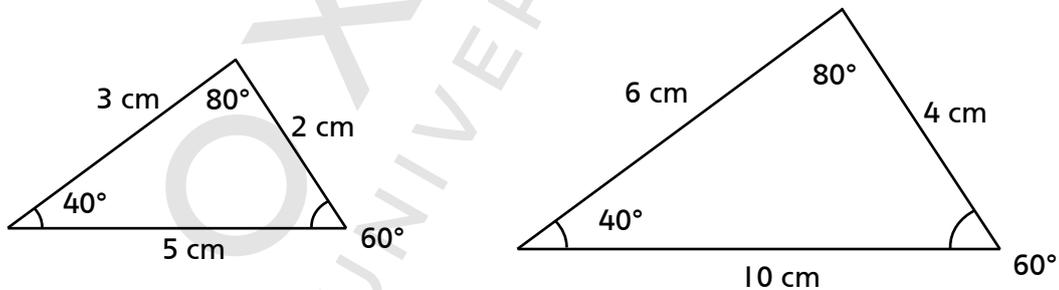**Q8**

a) Construct a triangle PQR using ruler and compass, where $\overline{PQ}$ = 7 cm, m ∠ QPR = 30˚, and m ∠ PQR = 60˚. Calculate m ∠ PRQ. **[ /4]**
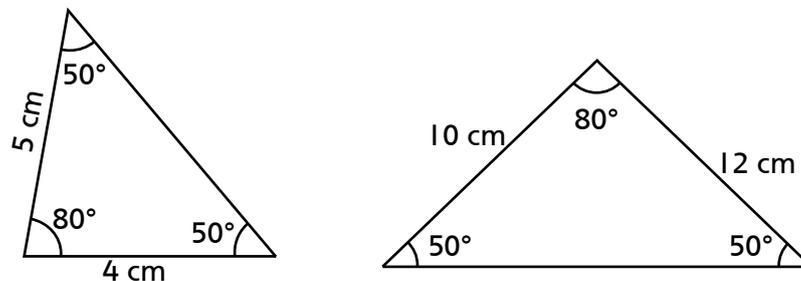
b) Construct a parallelogram whose diagonals are 5.4 cm and 6.2 cm, and the angle between them is 70˚. **[ /4]**

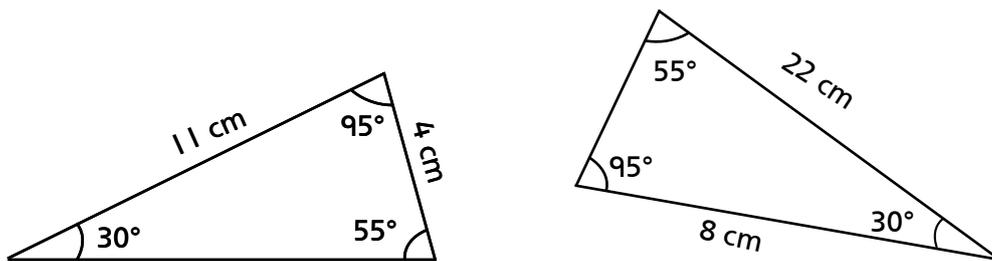c) Which of the following triangles are similar. Give reasons for your answer. **[ /2]**

i)



ii)

iii)



_____

_____

_____

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_____

**[Total: /10]**

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**Q9.**

a) A music store tracks the data on their sales of instruments as follows.                    **[ /4]**

| Instruments | No. of Sales |
|-------------|--------------|
| Guitar | 750 |
| Flute | 230 |
| Drums | 520 |
| Piano | 400 |
| Saxophone | 350 |

Draw a bar graph representing the data.

b) Ahmed owns a plot and some gold jewellery. Calculate the property tax on the plot and zakat on the jewellery. The details are given below. **[ /4]**

| Items | Worth | Property Tax 20% | Zakat 2.5% |
|-------|-------|------------------|------------|
| Plot | Rs 22500000 | | |
| Gold | Rs 1255000 | | |

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_____

_____

c) If $\mathbb{U}$ = {1, 2, 3, … 10}, A = {3, 5, 8, 9}, and B = {2, 3, 4, 5, 9}, show the elements of $\mathbb{U}$, A, and B in the given Venn diagram. **[ /2]**



**[Total: /10]**

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**Q10.**

a) Banks offer reward on the amount deposited by their customers. This is known as interest which is paid yearly at a certain rate.

(i) Write down the formula required to calculate interest. **[ /1]**

_____

_____

_____

_____

(ii) Calculate the unknown in the table given below. **[ /3]**

| Principal (Rs) | Rate (%) | Time (Years) | Interest (Rs) |
|---|---|---|---|
| 5000 | 3 | 4 | |
| | 2 | 3 | 1500 |
| 8575 | | 2 | 857.5 |

b) Factorise the given expression using identity. **[ /3]**

$(a^2 + 8ab + 16b^2) - 81$

c) Rafay's mother gave him Rs $8xy^2$ and his father gave him Rs $3(xy^2 + 4)$. Out of the total he spent Rs $(12 - 8xy^2)$ to buy his favourite books. How much money is left with him?
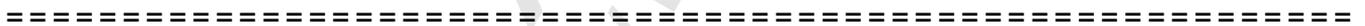
**[ /3]**

**[Total: /10]**

**Q11.**

a) Subtract $8x^2 - 5y - 4$ from $5y - 8x^2 + xy$ and find the value if $x = 2$, & $y = 1$     **[ /5]**

_____

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b) If $p^2 + \dfrac{l}{p^2} = 7$, find the value of $p + \dfrac{l}{p}$.     **[ /3]**

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c) Expand $(2x - 1)^2$ using the identity $(a - b)^2 = a^2 - 2ab + b^2$.     **[ /2]**

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**[Total: /10]**

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**Q12.**

a) In the given circle with centre C, $\overline{BD}$ is the diameter of the circle. A is a point on the circumference, m∠ADC = 40°. Find m∠CBA, using property of a circle.     **[ /3]**
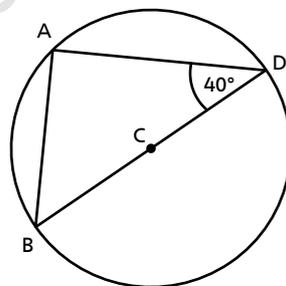
b) Find the height of a triangle whose area is 210 cm² and base is 35 cm. **[ /3]**

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c) Calculate the total surface area of a cube whose side is 3.4 cm. **[ /2]**

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d) Find the area of a circle inscribed in a square of side 15 cm. **[ /2]**

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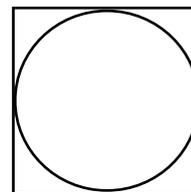
15 m

**[Total:   /10]**

# Model Paper 2
# Annual Examination
## Mathematics
## Class VII

**Name:** _____    **Section:** _____    **Date:** _____

**Time: 2 Hours**    **Maximum Marks: 100**

# Read these instructions first:

- Write your name, section, and date clearly in the space provided.

- Answer all questions in Section A, Section B, and Section C.

- Show all your working along with the answer in the space provided.

- Omission of essential working will result in loss of marks.

- At the end of the examination, recheck your work before handing it over.

- The number of marks is given in brackets [ ] at the end of each question.

- This document consists of 11 printed pages.

_____ **For Examiner's Use Only** _____

| Section | A | B | | | | | | C | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | |
| **Max. Marks** | 20 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 10 | 10 | 100 |
| **Marks Obtained** | | | | | | | | | | | | | |
| | | | | | | | | | | | **Percentage** | | |

**Invigilated by:** _____    **Marked by:** _____    **Checked by:** _____

# Section A

Attempt **all** questions [20 Marks]

**Q1.** Each question has four options. Encircle the correct answer.

**I.** If A and B are two sets, then what is B/A?
 A. Intersection of two sets
 B. Difference of two sets
 C. Union of two sets
 D. Universal sets

**II.** If a number has finite numbers of decimal digits, what is it called?
 A. Terminating decimal
 B. Non-terminating decimal
 C. Recurring decimal
 D. Non-recurring decimal

**III.** What is the coefficient of xy in the expression $- 4x^2yz$?
 A. $4z$
 B. $- 4xz$
 C. $4x^2y$
 D. $4xyz$

**IV.** What will be the complementary angle of an angle greater than 45°?
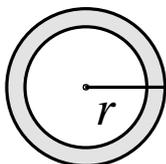 A. Greater than 45°
 B. Equal to 45°
 C. 90°
 D. Less than 45°

**V.** Which one is the correct option for the given trapezium ABCD?
 A. ∠A + ∠B + ∠C + ∠D = 180°
 B. ∠A + ∠B + ∠C + ∠D = 90°
 C. ∠A + ∠B + ∠C + ∠D = 360°
 D. ∠A + ∠B + ∠C + ∠D = 100°
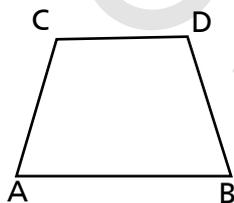


**VI.** Sara took 5 rounds along a circular path. Which formula should she choose to find the distance covered in one round?
 A. $\pi r$
 B. $\pi r^2$
 C. $2\pi r$
 D. $2\pi d$



**VII.** If the base of a triangle is 5 cm and its height is 4 cm. What is its area?
 A. 4.5 cm²
 B. 10 cm²
 C. 18 cm²
 D. 20 cm²

**VIII.** Which of the following option is less than 2?
 A. $1\frac{1}{3} + \frac{4}{5}$
 B. $3 - \frac{1}{4}$
 C. $\frac{9}{4} - \frac{1}{4}$
 D. $\frac{13}{5} - 1$

**IX.** When more time is allotted, the number of days required to finish a task becomes
 A. less
 B. more
 C. double
 D. same as before

**X.** What are the factors of the term $- x^2y^3$?
 A. $x \times x \times y \times y \times y$
 B. $-1 \times x \times y$
 C. $-1 \times x \times x \times y \times y \times y$
 D. $-1 \times y \times y \times y$

**XI.** Which of the following measurements are true for an isosceles triangle?
 A. $m\overline{AB}$ = 5.5 cm, $m\overline{BC}$ = 5.5 cm, $m\overline{AC}$ = 5.5 cm
 B. $m\overline{AB}$ = 7 cm, $m\overline{BC}$ = 8 cm, $m\overline{AC}$ = 9 cm
 C. $m\overline{AB}$ = 8 cm, $m\overline{BC}$ = 5 cm, $m\overline{AC}$ = 5 cm
 D. $m\overline{AB}$ = 9 cm, $m\overline{BC}$ = 3 cm, $m\overline{AC}$ = 7 cm

**XII.** What is the square root of 256 ÷ 100?
 A. 1.6
 B. 1.28
 C. 16
 D. 0.16

**XIII.** Simplify $\left[\left(\frac{3}{4}\right)^3\right]^4$. What will be the result?

- **A.** $\left(\frac{3}{4}\right)^7$
- **B.** $\left(\frac{3}{4}\right)^{-7}$
- **C.** $\frac{3}{4}$
- **D.** $\left(\frac{3}{4}\right)^{12}$

**XIV.** What is the degree of the expression $a^5 - 2ab^2 - 5ab$?

- **A.** 7
- **B.** 5
- **C.** 2
- **D.** 3

**XV.** Which of the following is correct for the angles within the segment of a circle? They are

- **A.** unequal
- **B.** equal
- **C.** complementary
- **D.** obtuse

**XVI.** What is the highest power of a variable in a linear equation?

- **A.** One
- **B.** Two
- **C.** Three
- **D.** Zero

**XVII.** What are the factors of $8x + 24$?

- **A.** $4x + 12$
- **B.** $8(x + 3)$
- **C.** $24(x + 1)$
- **D.** $24(8x + 1)$

**XVIII.** The distance between the centre and a point on the circumference of a circle is 4.8 cm. What will be the distance between two points on the circumference passing through the centre of the circle?

- **A.** 2.4 cm
- **B.** 1.2 cm
- **C.** 12 cm
- **D.** 9.6 cm

**XIX.** The area of a square is $x^2y^2 - 20xyz + 100z^2$. What is the length of its side?

- **A.** $xy + 10z$
- **B.** $xy + 100z$
- **C.** $xy - 100z$
- **D.** $xy - 10z$

**XX.** If $m + \frac{1}{m} = 12$, then value of $m^2 + \frac{1}{m}$ is

- **A.** 144
- **B.** 142
- **C.** 146
- **D.** 288

**[Total: /20]**

# Section B

Attempt **all** questions                                                                                    [30 Marks]

**Q2.**

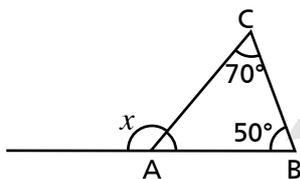a)  Find the value of the given polynomial when $a = 2$ and b = 3                  **[ /2 ]**

$$\frac{(a^2 - b^2)}{3}$$

_____

_____

_____

_____

_____

b)  If $3x - 4y = 10$ and $xy = -1$, find the value of $9x^2 + 16y^2$                **[ /3]**

_____

_____

_____

_____

_____

**[Total: /5]**

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**Q3.**

a)  In the given triangle find the value of angle $x$.                                   **[ /2]**



_____

_____

_____

_____

b)  The teacher has given a cubical box to a group of students and asks them to find the length of its sides. The students find a label on the box telling that its surface area is 294 m². Using this information what will be the length of the sides of the box?        **[ /3]**

_____

_____

_____

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_____



Surface area = 294 m²
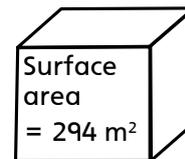
**[Total: /5]**

**Q4.**

a) A shopkeeper offered 7% discount on the original price of and item. If the selling price is Rs186, find the original price. **[ /3]**
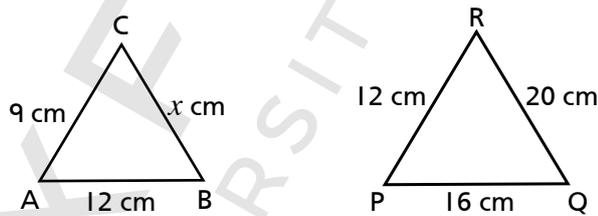
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b) The angles of a quadrilateral are 76°, 50°, and 104°. Find the measure of the fourth angle. **[ /2]**

_____

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**[Total: / 5]**

====================================================

**Q5.**

a) Δ ABC is similar to Δ PQR. Find the value of $x$ in the given figure. **[ /2]**



_____

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_____

b) A circular disc has a diameter of 42 cm, find the area of the disc. (Take$\pi = \frac{22}{7}$) **[ /3]**

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**[Total: /5]**

**Q6.**

a)  △ ABC ≅ △ LMN. Write the corresponding congruent sides of the triangles.    **[ /2]**
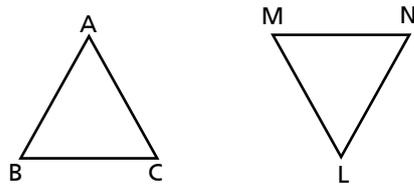
$\overline{AB}$ _____

$\overline{BC}$ _____

b)  Simplify: $\sqrt{49} \times \sqrt{100} \div \sqrt{25} + \sqrt{64}$    **[ /3]**

_____

_____

_____

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_____

**[Total: /5]**

=========================================================

**Q7.**

a)  Find the value of $x$. Give reasons for your answer.    **[ /2]**

_____

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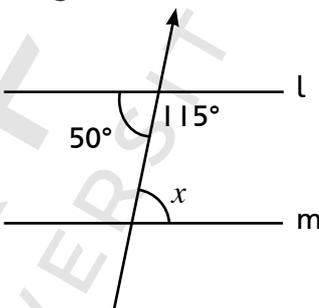
b)  Find the value of (898)² using standard identity.    **[ /3]**

_____

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**[Total: /5]**

# Section C

Attempt **all** questions                                                                            **[50 Marks]**

**Q8.**

a)   The dimensions of a rectangular field are $2x + 3$ and $3x - 7$ units. For what value of $x$
     would it be a square?                                                                          **[  /3]**

_____

_____

_____

_____

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_____

b)   With the help of the information given in the following table, find the cost of one table
     and one chair.                                                                                 **[  /5]**

| Items | Cost |
|---|---|
|  | Total cost of two tables and three chairs = Rs 7050 |
|  | Cost of table is Rs 400 more than chair. |

c)   Factorise $25x^2 - (3y + 4z)^2$. [use identity $x^2 - y^2 = (x + y)(x - y)$]                  **[  /2]**

_____

_____

_____

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_____

**[Total:  /10]**

**Q9.**

a) Draw a line segment $\overline{PQ}$ of length 6.4 cm. Bisect it using a ruler and compass. Write the steps of construction. **[ /5]**
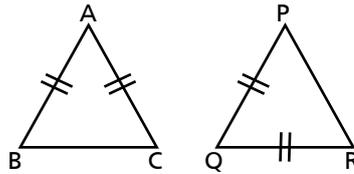
Construction:

Steps of construction:

_____

_____

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_____

b) Draw a circle of radius 4 cm. Draw a diameter $\overline{AB}$ of the circle. Take a point M on the circumference of the circle. Draw $\overline{AM}$ and $\overline{BM}$. What is m∠AMB? **[ /3]**

c)   Δ ABC and Δ PQR are congruent. Write the corresponding angles.          **[ /2]**

∠ A _____

∠ C _____

A          P

B     C   Q     R
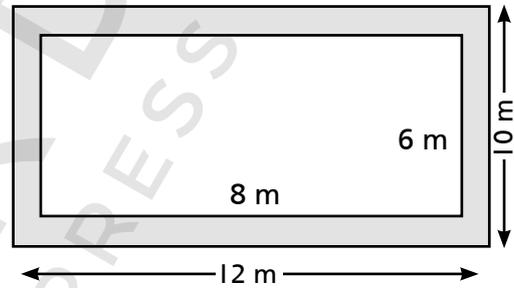
**[Total:  /10]**
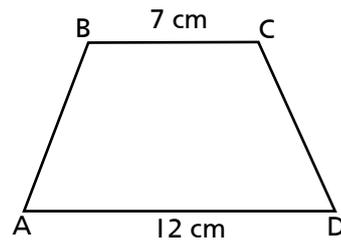
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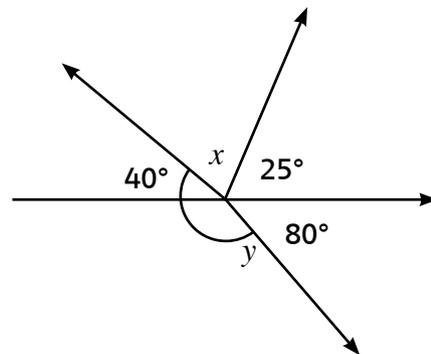
**Q10.**

a)   The management decides to make a 2 m wide pavement around an 8 m long and 6 m wide rectangular park. What will be the area of the pavement?          **[ /5]**

_____

_____

_____

_____

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_____

_____

6 m

8 m

10 m

←————— 12 m —————→

b)   ABCD is a trapezium shown below. Its area is 57 m². Find the height of the trapezium.

**[ /3]**

_____

_____

_____

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_____

B    7 cm    C

A    12 cm    D

c)   Find the value of angles x and y in the given figure.          **[ /2]**

_____

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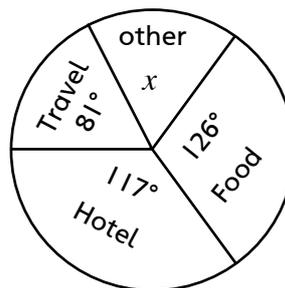
40°   x   25°

80°

y

**[Total:   /10]**

**Q11.**

   a)   The total cost of holidays was Rs 100 000. The given pie chart shows the sector angles corresponding to the expenses on different areas.    **[ / 5]**

       (i)    Calculate the value of $x$ in degrees.

       (ii)   How much was spent on travel?

       (iii)  Calculate the percentage of the travel cost.

       (iv)  What were the expenses in other areas?

       (v)   How much amount was spent on food?

   b)   Find the volume of a right circular cylinder when the circumference is 88 cm and its height is 10 cm.    **[ /5]**
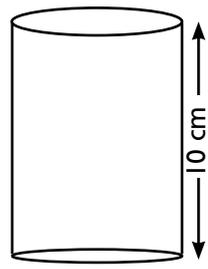
**[Total: /10]**

**Q.12.**

a) A car travels 60 km on 2 litres of petrol.

(i) How far will the car travel on 5 litres of petrol? [ /2]

(ii) How much fuel would be needed for a journey of 135 km? [ /2]

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b) The marked price of a television set is Rs 36 000. If a discount of 5% is offered for each television, how much does a customer pay for one set? [ /4]

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c) Solve $(3x - 5)(3x + 5)$ using identity. [ /2]

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[Total: /10]

# Model Paper 3
# Annual Examination
## Mathematics
## Class VII

**Name:** _____  **Section:** _____  **Date:** _____

**Time: 2 Hours**  **Maximum Marks: 100**

# Read these instructions first:

- Write your name, section, and date clearly in the space provided.

- Answer all questions in Section A, Section B, and Section C.

- Show all your working along with the answer in the space provided.

- Omission of essential working will result in loss of marks.

- At the end of the examination, recheck your work before handing it over.

- The number of marks is given in brackets [ ] at the end of each question.

- This document consists of 13 printed pages.

_____ **For Examiner's Use Only** _____

| Section | A | B | | | | | | C | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | |
| **Max. Marks** | 20 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 10 | 10 | 100 |
| **Marks Obtained** | | | | | | | | | | | | | |
| | | | | | | | | | | | **Percentage** | | |

**Invigilated by:** _____ **Marked by:** _____ **Checked by:** _____

# Section A

Attempt **all** questions                                                                  **[20 Marks]**

**Q1.**    Each question has four options. Encircle the correct answer.

**I.**   Evaluate $\sqrt{6}\ \frac{1}{4}$ What will be the result?

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

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

   **C.**  $6\frac{1}{2}$

   **D.**  $1\frac{1}{2}$

**II.**   If A and B are two sets, then which of the answer is correct for the set containing all the elements of either set A or set B?

   **A.**  Complement of B

   **B.**  Union of A and B

   **C.**  Complement of A

   **D.**  Intersection of A and B

**III.**   What will be the value of $1 \times 0.5 \times 0.001$?

   **A.**  0.005

   **B.**  0.5

   **C.**  0.0005

   **D.**  0.00005

**IV.**   One angle of a right angled triangle is always

   **A.**  120°

   **B.**  180°

   **C.**  90°

   **D.**  270°

**V.**   What is the area of a square park whose perimeter is 96 cm?

   **A.**  576 cm²

   **B.**  626 cm²

   **C.**  726 cm²

   **D.**  748 cm²

**VI.**   What is the numerical factor in any term of the polynomial called?

   **A.**  Constant

   **B.**  Variable

   **C.**  Coefficient

   **D.**  Exponent

**VII.**   What will be the factors of $144x^2 + 72x + 9$?

   **A.**  $(12x - 3)^2$

   **B.**  $(12x + 3)^2$

   **C.**  $(144x + 9)^2$

   **D.**  $(12x + 3)(12x - 3)$

**VIII.**   Which of the following statement is true for the angles $x$ and $180 - x$?

   **A.**  Complementary angles

   **B.**  Vertically adjacent angles

   **C.**  Supplementary angles

   **D.**  Corresponding angles

**IX.**   What will be the diameter of a cylinder, if its volume is 1100 cm³ and height is 14 cm?

   **A.**  100 cm

   **B.**  5 cm

   **C.**  10 cm

   **D.**  50 cm

**X.**   What a line from the center to the circumference of the circle is called?

   **A.**  Area of the circle

   **B.**  Radius of the circle

   **C.**  Perpendicular on the circle

   **D.**  Diameter of the circle

**XI.**   Sami invested some money in a bank at the rate 5% per annum. After 3 years he got Rs 3300 as simple interest. How much did he invest?

   **A.**  Rs 22000

   **B.**  Rs 2200

   **C.**  Rs 3300

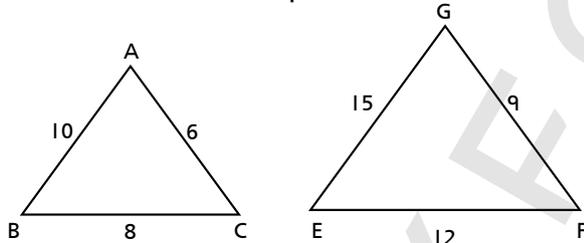   **D.**  Rs 220

**XII.**   Express $\frac{625}{2401}$ in exponential form.

   **A.**  $\left(\frac{5}{9}\right)^4$

   **B.**  $\left(\frac{25}{19}\right)^2$

   **C.**  $\left(\frac{125}{7}\right)^5$

   **D.**  $\left(\frac{5}{7}\right)^4$

**XIII.** Following is a bar graph presenting the favourite games played by a group of students. How many students took part in the survey?

**Favourite Game**
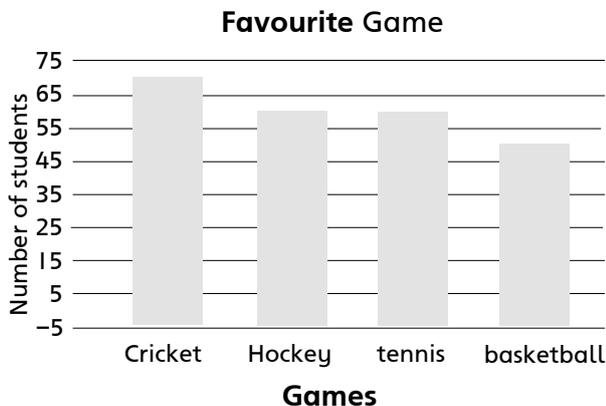


- **A.** 70
- **B.** 240
- **C.** 120
- **D.** 25

**XIV.** Given below are similar triangles. **Which** side corresponds to $\overline{AB}$?



- **A.** $\overline{BC}$
- **B.** $\overline{EF}$
- **C.** $\overline{GE}$
- **D.** $\overline{FG}$

**XV.** How many numbers of term are in a binomial expression?
- **A.** One
- **B.** Two
- **C.** Three
- **D.** More than three

**XVI.** If a = 1, and b = − 2, what is the value of $a^2 + b^2$?
- **A.** −5
- **B.** 5
- **C.** 3
- **D.** −3

**XVII.** If surface area of a cube is 294 cm², what is the area of one side?
- **A.** 14 cm²
- **B.** 7 cm²
- **C.** 28 cm²
- **D.** 49 cm²

**XVIII.** The part of the circumference of a circle is called a/an
- **A.** segment
- **B.** arc
- **C.** sector
- **D.** radius

**XIX.** Which angle corresponds with angle A?
- **A.** ∠G
- **B.** ∠F
- **C.** ∠E
- **D.** ∠C
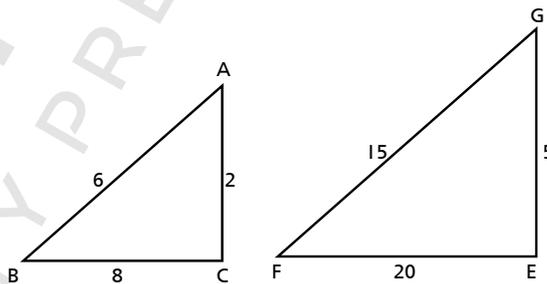


**XX.** What is the name of a triangle with all sides equal?
- **A.** Right angled triangle
- **B.** Isosceles triangle
- **C.** Equilateral triangle
- **D.** Scalene triangle

**[ Total: /20]**

# Section B
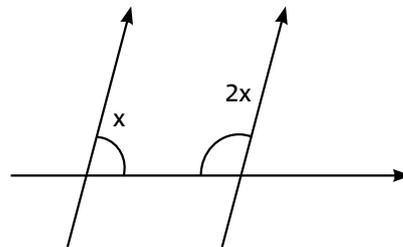
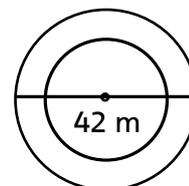Attempt **all** questions                                                                 **[30 Marks]**

**Q2.**

    a)   Find the value of $x$. Give reasons for your answer.                    **[ /2]**

_____

_____

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_____

    **b)**  Find the circumference of a circular path when its diameter is 42 m.    **[ /3]**

_____

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**[Total: /5]**

=============================================================

**Q3.**

    a)   Factorise the following expression.                                    **[ /2]**

$x^2 + 22x + 121$

_____

_____

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    b)   In the following figure, show that $\Delta$ PQT $\cong$ $\Delta$ PRT.                    **[ /3]**

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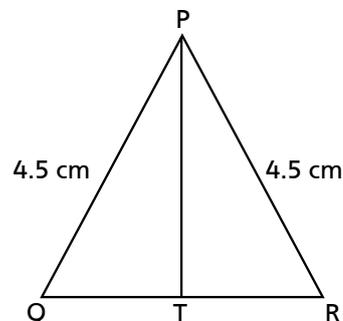
**[Total: /5]**

**Q4.**

a) Subtract $24xy - 10y - 18$ from $30xy + 12y - 14$. **[ /3]**

_____

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b) Find the value of $x$ in the given triangle. **[ /2]**



**[Total: /5 ]**

=================================================

**Q5.**
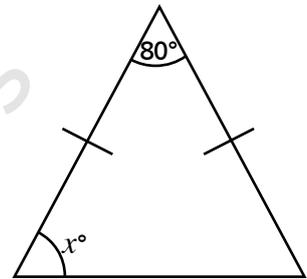
a) Δ ABC is similar to Δ PQR. Calculate the value of the unknown. **[ /3]**
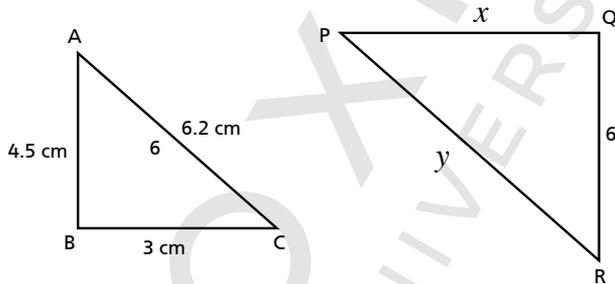
b)    A = {2, 3, 4, 5, 6, 7}                                             **[ /2]**

       B = {3, 5, 7}

       C = {3, 5, 7, 20, 25, 30}

       D = {20, 25, 30}

       Find: ( i )   B∩D       ( ii )   A∪C

**[Total: /5]**

========================================================

**Q6.**

a)    Aslam earned the simple interest of Rs 3000 in 5 years at 6 % per annum. Find the principal amount he deposited in the bank.           **[ /3]**

b)    Expand $\left(x + \frac{1}{2}\right)^2$.                                         **[ /2]**

**[Total: /5]**

**Q7.**

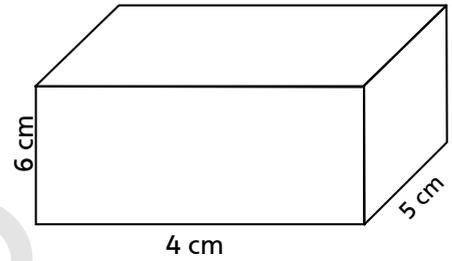a) The dimensions of a cuboid are given below. Calculate the surface area of the cuboid.

**[ /2]**



b) Solve the following equation for m.

**[ /3]**

$$\frac{m-1}{3} + 1 = \frac{2m}{7}$$

**[Total: /5]**

# Section C

Attempt **all** questions                                    **[50 Marks]**

**Q8.**

a) Abid is 5 years younger than Ryan. Four years later, Ryan will be twice as old as Abid. Find their present ages.                                    **[ /4]**

_____

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b) WXYZ is a parallelogram. Given that $\overline{WY}$ is its diagonal, prove that $\triangle$ WXY $\cong$ $\triangle$ WZY.    **[ /3]**

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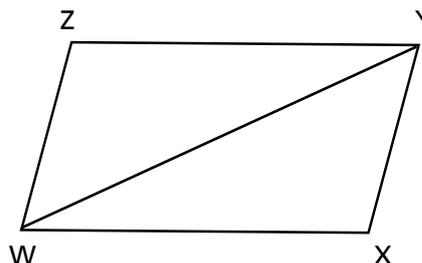


c) The floor of a building consists of 1200 tiles, which are rhombus shaped. Each of its diagonals are 45 cm and 30 cm in length. Find the area of the floor in metres.    **[ /3]**

_____

_____

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**[Total: /10]**

**Q9.**

a) The sum of two consecutive multiples of 5 is 55. Find the multiples. **[ /4]**

_____

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b) A rectangular box with the given dimensions was painted 3 sides shown shaded in the figure. Find the surface area of the painted section. **[ /2]**

_____

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_____

15 cm    3 cm

10 cm
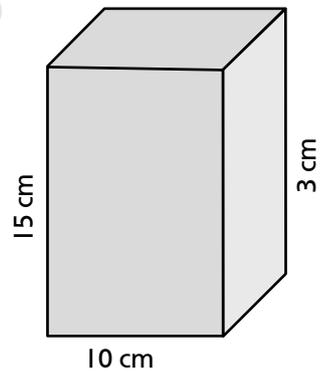
c) Find the volume of the cylinder given below. **[ /2]**

_____

_____

_____

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7 cm

21 cm
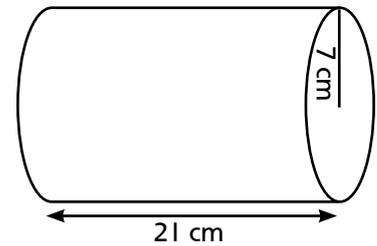
d) Evaluate $0.58 \times 3.192$. Express your answer as a fraction. **[ /2]**

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**[Total: /10]**

**Q10.**

a) The wheel of a bicycle has a radius of 28 cm.

   (i) How much distance will the wheel cover in 5 rotations?      **[ /3]**

_____

_____

_____

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_____

   (ii) How many metres will the wheel cover in one rotation?      **[ /1]**

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b) Construct $\angle ABC = 120°$ with the help of a compass and ruler. Write the steps of construction.      **[ /4]**

Construction:

Steps of construction:

_____

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c) If A= $3x^2 - 4x + 1$, B = $5x^2 + 3x - 8$, C = $4x^2 - 7x + 3$, find B + C − A. **[ /2]**

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**[Total: /10]**

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**Q11.**

a) Construct a rectangle ABCD, in which $\overline{BC}$ = 5 cm, and diagonal $\overline{BD}$ = 6.2 cm. Measure and record $\overline{AB}$ and $\overline{CD}$. **[ /5]**

b)  In an exam 77% of students passed and 115 students failed. Find the number of students who passed the exam.                                    **[ /3]**

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c)  Find the continued ratio when a : b = 5 : 3 and b : c = 1 : 6                **[ /2]**

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**[Total: /10]**

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**Q12.**

a)  Among two supplementary angles, the measure of the larger angle is 36° more than the measure of the smaller angle. Find their measures.                **[ /4]**

_____

_____

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b) What should be subtracted from $2x^3 - 3x^2y + 2xy^2 + 3y$ to get $x^3 - 2x^2y + 3xy^2 + 4y$? **[ /3]**

_____

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c) The pie chart shows the sector angles for 1440 people who watched different movies. **[ /3]**
   (i) Find the value of $x$.
   (ii) Find the number of people who watched:
      — action movies
      — comedy movies

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**[Total: /10]**

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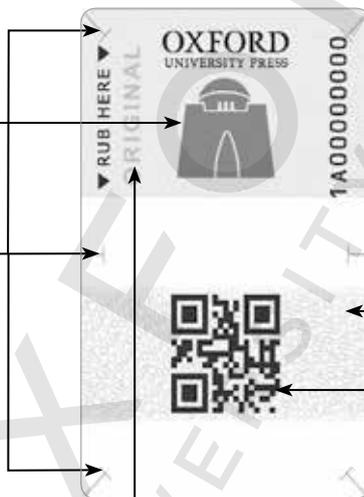
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