PRACTICAL GEOMETRY

Multiple Choice Questions:(one mark each)

Choose the correct choice among the following:

1. With the help of ruler and compasses, the angles which cannot be constructed is:
   a) 30°   b) 75°   c) 105°   d) 110°
2. A triangle having sides 3cm ,4cm and 5cm is named as:
   a) Acute angled   b) obtuse angled c) right angled d) isosceles triangle
3. If four triangles are constructed with sides of the length indicated below, the triangle which will not be a right –angled has sides:
   a) 3,4,5   b) 5,12,13   c) 8,15,17   d) 12,15,18

Short Answer Questions:(Write the construction steps) (Two mark each)

4. Construct a right –angled ΔABC in which <B=90° , BC=4.5cm and hypotenuse CA=5.5cm?
5. Construct an equilateral ΔABC each of whose sides is of length 5.2cm?
6. Construct aΔPQR, such that, PQ=5 cm,<P=60° , <Q=45° ? Measure <R?
7. Draw a triangle ABC with AB=6 cm, <CAB=45° and <CBA=30°?
8. Construct an isosceles triangle in which the length of each of its equal sides is 6.5cm and the angle between them is 110°. Measure base angles?
9. Construct a triangle PQR given that PQ=5.4 cm ,QR= PR =4.7cm. Name the triangle?

PERIMETER AND AREA   Marks:30

Multiple Choice Questions:(ONE MARK EACH)

1. Area of a circle with diameter m radius n and circumference p is

   $2\pi\,n$ b) πm^2 c) $\pi\,n^2$ d) πp^2

2. Area of right angled triangle is 30 sq.cm . If its smallest side is 5cm, then its hypotenuse is
   a) 14 cm   b) 13 cm   c) 12 cm   d) 11 cm

3. Circumference of a circle of diameter 5 cm is
   a) 3.14 cm   b) 31.4 cm   c)15.7 cm   d) 1.57 cm

4. Area of circular garden with diameter 8 m is
   a) $12.56 m^2$ b) $25.12 m^2$ c) $50.24 m^2$ d) $200.96 m^2$

5. A table top is semicircular in shape with diameter 2.8 m. Area of this table top is
   a) $3.08 m^2$ b) $6.16 m^2$ c) $12.32 m^2$ d) $24.64 m^2$

   Fill in the blanks(ONE MARK EACH)

1. Perimeter of a regular polygon=length of one side x ----------------
2. To find area, any side of a parallelogram can be chosen as-------------- of the parallelogram.
3. The distance around a circle is its ------------------
4. Ratio of the circumference of a circle to its diameter is denoted y symbol------------------
5. If area of a triangular piece of cardboard is $90 cm^2$, then the length of altitude corresponding to 20 cm long base is ------------cm.

   ANSWER THE FOLLOWING QUESTIONS (TWO MARK EACH)

1. ABCD is a parallelogram , AE is perpendicular to DC. If DC= 8 cm, AM=4.5 cm and DN=6 cm , find the length of BC?
2. One side of a parallelogram is 30 cm, and its area is $540 cm^2$. Find the height corresponding to the given side?
3. A wire is in the shape of a square of side 10 cm. If the wire is rebent into a rectangle of length 12 cm, find its breadth . Which shape encloses more area and by how much?
4. The area of a square and a rectangle are equal. If the side of the square is 40 cm and the breadth of the rectangle is 25 cm , find the length of the rectangle. Also , find the perimeter of the rectangle?

5. A rectangular lawn is 15 m long and 9m wide. It has a path 1.5 cm wide all around it. Find the area of the path?

6. A circular fish pond has a diameter of 14 cm. The pond is surrounded by a concrete path 1.75 m wide. Find the area of the path?

7. If the circumference of a circular sheet is 154 cm, find its radius. Also find the area of the sheet? ($\pi = \frac{22}{7}$)

8. Two adjacent sides of a parallelogram are 15 cm and 10 cm. If the distance between the longer sides is 8 cm , find the area of the parallelogram. Also find the distance between the shorter sides?

9. A path 180 cm long and 5 cm wide is to be paved with bricks of length 20 cm and breadth 15 cm . Find the cost of bricks required @ Rs. 750 per thousand?

10. Find the altitude of a triangle if its area is 52 cm^2 and the base is 16 cm?

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WORSHEET-3   MARKS : 30
ALGEBRAIC EXPRESSIONS

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MCQQUESTIONS : (one mark each)

1. The sum of x^4 - xy + $2y^2$ and $-x^4$ + xy+$2y^2$ is
   a) 2xy   b) 0   c) 2   d) 3xy
2. The subtraction of 5 times of y from x is
   a) 5x-y   b)y-5x   c) x-5y   d) 5y-x
3. The length of a side of square is given as 2x+3. Which expression represents the perimeter of the square?
   a) 2x+16   b) 6x+9   c) 8x+3   d)8x+12
4. - xy – 5xy is equal to
   a) – 6xy   b) 6xy   c) 4xy   d) – 4xy
5. The value of expression x^3 + y^3 when x=2 and y=-2
   a) 0   b) 8   c) 16   d) -16

Fill in the blanks(one mark each)

1. The factors of the term – $3p^2q^2$ are -----------------
2. An algebraic expression having two unlike terms is called a ----------------
3. The perimeter of a triangle whose sides measure 2a , b and a+b is-------------
4. The number of unlike terms in the algebraic expression $3x^2$ – 2xy + $5x^2$ is-----
5. The algebraic expression for the statement ' Thrice square of a number x subtracted from five times the sum of y and 2 is-----------------

ANSWER THE FOLLOWINGQUESTIONS. (two mark each)

1. The sides of a triangle are 5a- 3b, 3a+2b and 5b-2a, find its perimeter?
2. What must be added to $5x^3$ – $2x^2$ + 3x +7 to get $7x^3$ + 7x – 5?
3. Subtract the sum of 12ab – $10b^2$ – $18a^2$ and 9ab +12 b^2 +$14a^2$ from the sum of ab + $2b^2$ and $3b^2$- a^2 ?
4. When a=3, b=0, c=-2 , find the values of ab+2bc+3ca +4abc?
5. Subtract the sum of $3x^2$ +2xy – $2y^2$ and $5y^2$ -7xy from $5x^2$ + $2y^2$- 3xy?
6. From the sum of 4 +3x and 5 –4x +$2x^2$,subtract the sum of $3x^2$ – 5x and $-x^2$ +2x +5?
7. Simplify the following
     $5x^4$ – $7x^2$ +8x – 1+$3x^3$ – $9x^2$ +7 – $3x^4$ +11x -2 +$8x^2$
8. Simplify the following expressions and find their value when x = -2
   a) 5(2 – 3x) + 7x – 11   b) 2(x^2 – 3x) – 5 (7x – 4)
9. What must be added to 5a – 3b + 2c to get 3a – 4b + 7c ?
10. What should be taken away from $3x^2$ – $4y^2$ + 5xy +20 to obtain $-x^2$ – y^2 + 6xy +20 ?

EXPONENTS AND POWERS

MCQ QUESTIONS   (ONE MARK EACH)

1. axaxaxbxbxb is equal to
   a) a^3b^2 b) a^2b^3 c) $(ab)^3$ d) a^6b^6
2. $(-2)^3 \times (-3)^2$ is equal to
   a) 6^5 b) $(-6)^6$ c) 72   d) -72
3. The value of $(-\frac{3}{4})^5$
   a) $\frac{81}{256}$ b) $-\frac{81}{256}$ c) $-\frac{243}{1024}$ d) $\frac{243}{1024}$
4. The value of $(5^{30} \times 5^{20}) \div (5^5)^9$ in the exponential form is
   a) 5^{-5} b) 5^5 c) 5^{50} d) 5^{95}
5. The standard form of 751.65 is
   a) 7.5165×10^2 b) 75.165×10 c) 7.5165×10^4 d) 7.51×10^2

FILL IN THE BLANKS (ONE MARK EACH)

1. In the expression $(-5)^9$, exponent = -------- and base=---------
2. If the base is $-\frac{3}{4}$ and exponent is 5, then exponential form is ----------
3. If $(100)^0 = 10^n$, then the value of n is ----------
4. The value of $(-3)^2 \times (-1)^{2017}$ = ----------------
5. If $(-2)^n = -128$, then n=-----------------

ANSWER THE FOLLOWING QUESTIONS (TWO MARKS EACH)

1. Simplify and write in the exponential form
   a) $5^4 \times 8^4$ b) $(2^3)^4 \div 2^5$ c) $(6^2)^3 \div 6^3$ d) $(7^{12} \times 7^3) \div 7^4$
2. Express each of the following rational numbers in the exponential form
   a) $\frac{25}{64}$ b) $-\frac{64}{125}$ c) $-\frac{125}{216}$ d) $-\frac{343}{729}$
3. Simplify and express each of the following in exponential form:
   a) $(\frac{3}{7})^4 \times (\frac{3}{7})^5 \div (\frac{3}{7})^7$
   b) $(3^7 \div 3^5)^4$

4. Evaluate :
   a) $\frac{7^8}{7^6} \times \frac{a^{10}}{a^8} \times \frac{b^7}{b^4} \times \frac{c^{12}}{c^{12}}$
   b) $\frac{6^4}{3^2} \times \frac{9^2}{4^2} \times \frac{25^3}{15^6}$

5. Express each of the following as a product of powers of their prime factors :
   a) 9000   b) 2025
6. Express each of the following numbers using exponential notations:
   a) $\frac{144}{875}$ b) 1029
7. Identify the greater number, in each of the following:
   a) 2^6 or 6^2 b) 7.9×10^4 or 5.28×10^5
8. Express the following in usual form:
   a) 8.01×10^7
   b) 1.75×10^3
9. Find m so that $(\frac{2}{9})^3 \times (\frac{2}{9})^6 = (\frac{2}{9})^{2m-1}$?
10. If $\frac{p}{q} = (\frac{3}{2})^2 \div (\frac{9}{4})^0$, find the value of $(\frac{p}{q})^3$?