

# O. P. JINDAL SCHOOL, RAIGARH (CG) 496 001

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## WORK SHEET

### SUBJECT- MATHS

### CHAPTER- 12 ALGEBRAIC EXPRESSION

#### CLASS- VII

Choose correct option in questions 1 to 5.

- Q.1 What is the statement for the expression  $2y - 9$ :
- (a)  $2y$  subtracted from 9                      (b) 9 subtracted from  $y$  and multiplied by 2  
(c) 9 subtracted from 9                      (d) thrice of  $y$  minus 9
- Q.2 Give expression for: "5 times of 'y' to which 3 is added":
- (a)  $y + 15$                       (b)  $5y + 3$                       (c)  $\frac{5}{y} + 3$                       (d)  $3y + 5$
- Q.3 What should be value of 'a' if  $y^2 + y - a$  equals to 3 for  $y=1$ :
- (a) -1                      (b) -5                      (c) 5                      (d) 0
- Q.4 The value of expression  $2a^2 + 2b^2 - ab$  for  $a=2, b=1$  is:
- (a) 2                      (b) 8                      (c) 6                      (d) 10
- Q.5 Get the algebraic expressions using variables, constants and arithmetic operations.  
One- fourth of the sum of numbers  $m$  and  $n$
- (a)  $4(m + n)$                       (b)  $\frac{(m+n)}{4}$                       (c)  $m - n$                       (d)  $m + n$
- Q.6 An expression which contains two unlike terms is called \_\_\_\_\_.
- Q.7 If a natural number is denoted by  $n$ , its successor is \_\_\_\_\_
- Q.8 Classify the following polynomials as monomials, binomials, trinomials.  
 $-z + 5, x + y + z, y + z + 100, ab - ac, 17$
- Q.9 Subtract  $4a - 7ab + 3b + 12$  from  $12a - 9ab + 5b - 3$
- Q.10 Add:  $7xy + 5yz - 3zx, 4yz + 9zx - 4y, -3xz + 5x - 2xy$ .
- Q.11 Subtract  $4a - 7ab + 3b + 12$  from  $12a - 9ab + 5b - 3$
- Q.12 Find the value of the following expressions when  $n = - 2$ .
- (i)  $5n - 2$   
(ii)  $5n^2 + 5n - 2$   
(iii)  $n^3 + 5n + 5n - 2$

Q.13 What should be the value of  $b$  if the value of  $4y^2 + y - a$  equals to 12, when  $x = 2$ ?

Q.14 Find the value of the following expressions for  $a = 3$ ,  $b = -2$ .

(i)  $a + b$

(ii)  $7a - 4b$

(iii)  $a^2 + 2ab + b^2$

(iv)  $a^3 - b^3$

Q.15 (a) What should be added to  $x^2 - 3xy + y^2$  to obtain  $3x^2 + 4xy$ ?

(b) What should be subtracted from  $a + 5b + 10$  to get  $-5a + 7b - 15$ ?

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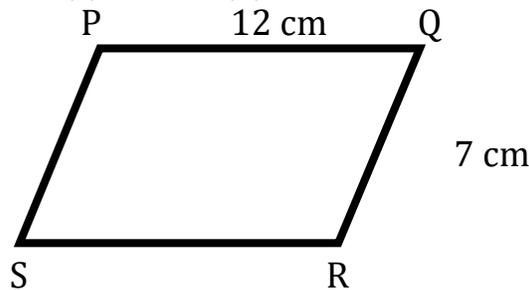
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## WORK SHEET SUBJECT- MATHS CHAPTER- 11 PERIMETER AND AREA

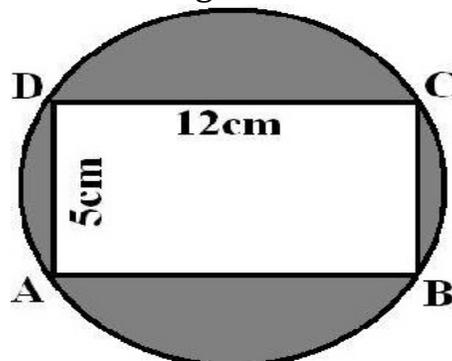
### CLASS- VII

Choose correct option in questions 1 to 5:-

- Q.1 The perimeter of square of side 2.5 m is:  
(a) 10.2 m (b)  $10.2 \text{ m}^2$  (c)  $6.25 \text{ m}^2$  (d) 6.25 m
- Q.2 The perimeter of rectangle of length 1.5 cm & breadth 2 cm is:  
(a) 3.4 cm (b) 7 cm (c) 6 cm (d) 3.5 cm
- Q.3 What will be the area of circular button of radius 7 cm:  
(a)  $154 \text{ cm}^2$  (b)  $49 \text{ cm}^2$  (c) 154 cm (d)  $3.14 \times 7 \text{ cm}^2$
- Q.4 The area of a circle is  $49\pi \text{ cm}^2$ . Its circumference is:  
(a)  $7\pi \text{ cm}$  (b)  $14\pi \text{ cm}$  (c)  $21\pi \text{ cm}$  (d)  $28\pi \text{ cm}$
- Q.5 The perimeter of parallelogram PQRS is:  
(a) 12 cm (b) 7 cm (c) 38 cm (d) 19 cm



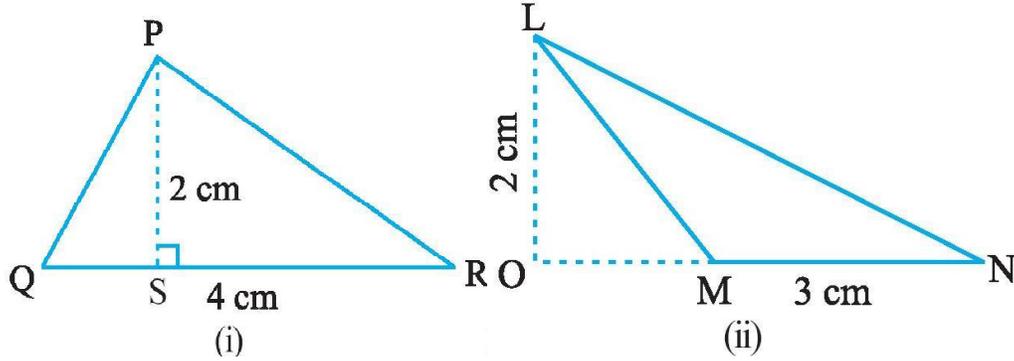
- Q.6 If we cut a parallelogram along one of its diagonals, we obtain two triangles. These triangles are equal in area because \_\_\_\_\_.
- Q.7 One - fourth of the perimeter of a square gives the \_\_\_\_\_.
- Q.8 Find the area of the shaded region in the above sided figure. Take  $\pi = 3.14$



Q.9 Anu wants to fence the garden in front of her house, on three sides with lengths 20 m, 12 m and 12 m. Find the cost of fencing at the rate of Rs 150 per meter.

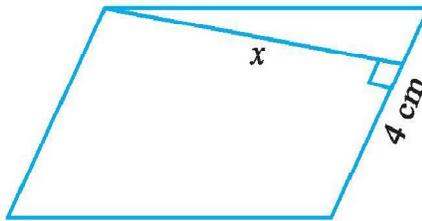
Q.10 The cost of fencing a circular field at the rate of Rs 24 per metre is Rs 5280. The field is to be ploughed at the rate of Rs 0.50 per m<sup>2</sup>. Find the cost of ploughing the field.

Q.11 Find the area of the following triangles:



Q.12 A path 5 m wide runs along inside a square park of side 100 m. Find the area of the path. Also find the cost of cementing it at the rate of Rs 250 per 10 m<sup>2</sup>.

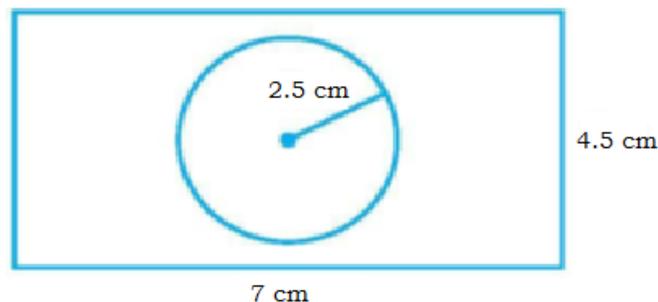
Q.13 Find the height 'x' if the area of the parallelogram is 24 cm<sup>2</sup> and the base is 4 cm.



Q.14 A rectangular park is 45 m long and 30 m wide. A path 2.5 m wide is constructed outside the park. Find the area of the path.

Q.15 The adjoining figure represents a rectangular lawn with a circular flower bed in the middle. Find:

- (i) The area of the whole land.
- (ii) The area of the flower bed.
- (iii) The area of the lawn excluding the area of the flower bed.
- (iv) The circumference of the flower bed.



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## WORK SHEET SUBJECT- MATHS CHAPTER- 09 NATIONAL NUMBERS

### CLASS- VII

Choose correct option in questions 1 to 5:-

Q.1 Which of the rational number is positive?

- a.  $\frac{9}{-15}$       b.  $\frac{-2}{3}$       c.  $\frac{3}{7}$       d.  $\frac{-4}{13}$

Q.2 The additive inverse of  $\frac{5}{7}$  is:

- a. 0      b. 1      c.  $\frac{5}{7}$       d.  $\frac{-5}{7}$

Q.3 The reciprocal of a positive rational number is:

- a. negative    b. positive    c. zero    d. None of these

Q.4 The equivalent rational number of  $\frac{-6}{5}$  is

- a.  $\frac{-3}{5}$       b.  $\frac{-12}{10}$       c.  $\frac{12}{10}$       d. None of these

Q.5 Reduce  $\frac{-63}{99}$  to the standard form.

- a.  $\frac{11}{7}$       b.  $\frac{7}{11}$       c.  $\frac{-7}{11}$       d.  $\frac{-11}{7}$

Q.6 The integer -8 as rational number is \_\_\_\_\_

Q.7 The ratio of Rs 3 to 30 paise is \_\_\_\_\_.

Q.8 Give four rational numbers equivalent to  $\frac{-9}{13}$

Q.9 Subtract  $\frac{-1}{3}$  from  $\frac{4}{5}$ .

Q.10 Write the following rational numbers in descending order:  $\frac{-1}{3}$ ,  $\frac{-2}{9}$ ,  $\frac{-3}{4}$

Q.11 Simplify:  $\frac{10}{13} \times \frac{26}{15} + \frac{13}{25} \times \frac{10}{13}$ .

Q.12 Find out six rational numbers between  $\frac{-5}{3}$  and  $\frac{2}{3}$ .

Q.13 Sum of two rational numbers is -8, one of them is  $\frac{3}{4}$  find the other number.

Q.14 If 35 shirts of equal size can be stitched from  $\frac{49}{2}$  metres of cloth, what is the length of the cloth required for each shirt? Find the length of cloth required for 4 shirts of equal size.

Q.15 Seema spends  $\frac{3}{4}$  of her pocket money. She spends  $\frac{1}{2}$  of it on a book,  $\frac{1}{6}$  on a movie and the remaining amount on a dress. What part of her pocket money did she spend on the dress?

## Chapter 5-Lines and angles

1. Choose the correct option in each of the following

(i) The sum of two complementary angles is

- (a)  $90^\circ$       (b)  $180^\circ$       (c)  $270^\circ$       (d)  $360^\circ$

(ii) Two obtuse angles can be complement of each other

- (a) Yes      (b) No      (c) Both (a) and (b)      (d) None of these

(iii) The difference in the measures of two complementary angles is  $20^\circ$ . The measures of angles are

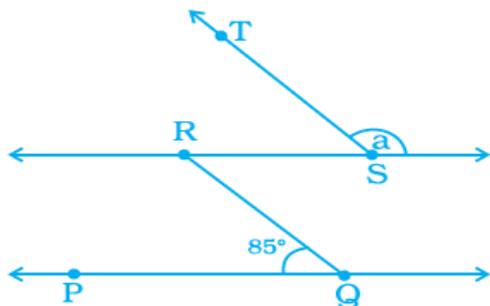
- (a)  $15^\circ, 35^\circ$       (b)  $25^\circ, 45^\circ$       (c)  $35^\circ, 55^\circ$       (d)  $45^\circ, 65^\circ$

(iv) The angle which makes a linear pair with an angle of  $61^\circ$  is

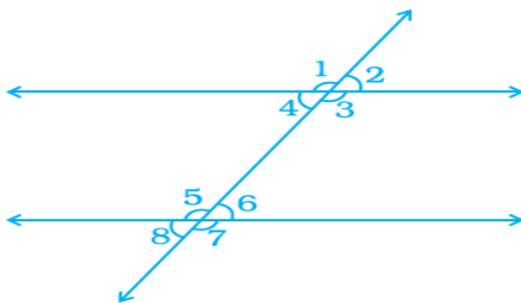
- (a)  $29^\circ$       (b)  $61^\circ$       (c)  $122^\circ$       (d)  $119^\circ$

(v) In fig  $PQ \parallel RS$  and  $QR \parallel TS$ , then value of  $a$  is

- (a)  $95^\circ$       (b)  $90^\circ$       (c)  $85^\circ$       (d)  $75^\circ$



(vi) In given figure  $\angle 1$  and  $\angle 5$  are pair of



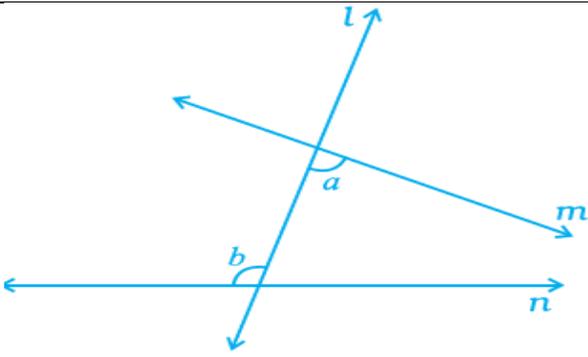
- (a) Interior angles  
(b) Corresponding angles  
(c) Alternate interior angles  
(d) Alternate Exterior angles

(vii) If two parallel lines are cut by a transversal, then each pair of corresponding angles are

- (a) equal      (b) Not equal      (c)  $90^\circ$       (d)  $180^\circ$

(viii) In given figure,  $a$  and  $b$  are

- (a) alternate exterior angles  
(b) corresponding angles  
(c) alternate interior angles  
(d) vertically opposite angles



2. Fill in the blanks

- (i) Two angles forming a \_\_\_\_\_ pair are supplementary.
- (ii) The supplement of a right angle is always a \_\_\_\_\_ angle.
- (iii) In a pair of complementary angles, each angle cannot be more than \_\_\_\_\_.
- (iv) An angle which is half of its supplement is \_\_\_\_\_.
- (v) Two lines in a plane which do not meet at a point anywhere are called \_\_\_\_\_ lines.
- (vi) Alternate interior angles have one common \_\_\_\_\_.
- (vii) The supplement of an obtuse angle is always \_\_\_\_\_ angle.

3. State whether the given statements are true or false.

- (i) Two right angles are complementary to each other.
- (ii) Two right angles are always supplementary to each other.
- (iii) One obtuse angle and one acute angle can make a pair of supplementary angles.
- (iv) A linear pair may have two acute angles.
- (v) Two supplementary angles are always obtuse angles.
- (vi) An angle is more than  $45^\circ$ . Its complementary angle must be less than  $45^\circ$ .

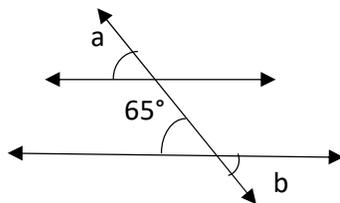
4. (i) Find the measure of angle complement to each of the following

- (a)  $89^\circ$       (b)  $79^\circ$       (c)  $60^\circ$

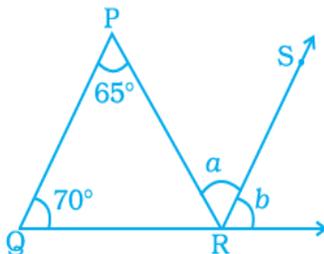
(ii) Find the measure of angle complement to each of the following

- (a)  $115^\circ$       (b)  $35^\circ$       (c)  $49^\circ$

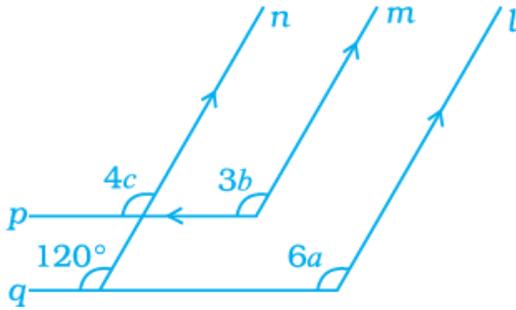
5. In given figure  $l \parallel m$ , find the value of  $3a-2b$ .



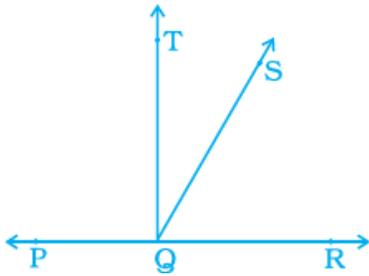
6. In the given figure  $QP \parallel RS$ , find the value of a and b.



7. In the given figure  $l$ ,  $m$  and  $n$  are parallel lines, and the lines  $p$  and  $q$  are also parallel. Find the values of  $a$ ,  $b$  and  $c$ .



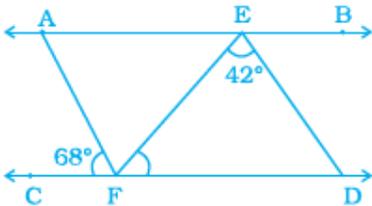
8. In given figure  $TQ \perp PR$ ,  
Name; (a) pair of complementary angles  
(b) two pairs of supplementary angles.  
(c) four pairs of adjacent angles.



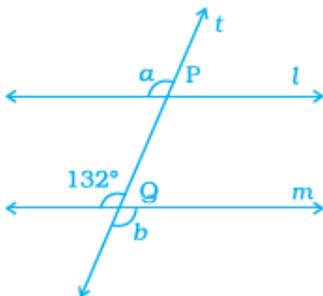
9. What is the type of other angle of a linear pair if  
(a) one of its angle is acute?  
(b) one of its angles is obtuse?  
(c) one of its angles is right?

10. Two angles are making a linear pair. If one of them is one-third of the other, find the angles.

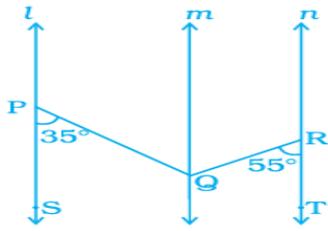
11. In given Fig,  $AB \parallel CD$ ,  $AF \parallel ED$ ,  $\angle AFC = 68^\circ$  and  $\angle FED = 42^\circ$ . Find  $\angle EFD$ .



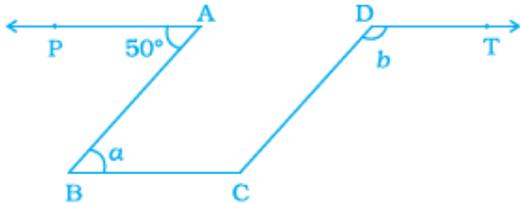
12. In given Figure  $l \parallel m$  and a line  $t$  intersects these lines at  $P$  and  $Q$ , respectively. Find the sum  $2a + b$ .



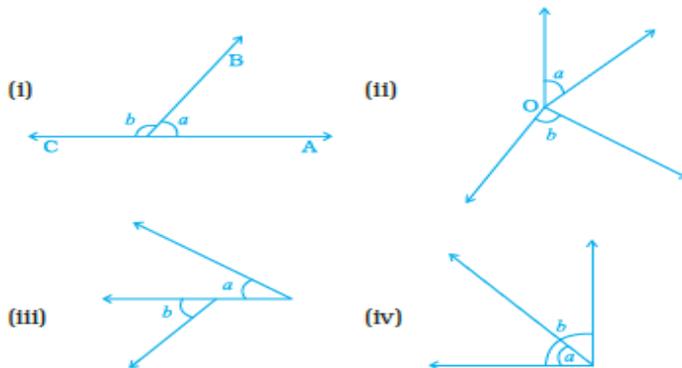
13. In given figure,  $l \parallel m \parallel n$ .  $\angle QPS = 35^\circ$  and  $\angle QRT = 55^\circ$ . Find  $\angle PQR$ .



14. In given figure,  $PA \parallel BC \parallel DT$  and  $AB \parallel DC$ . Then, the values of  $a$  and  $b$  are respectively.



15. In given figures are the following pairs of angles adjacent? Justify your answer.



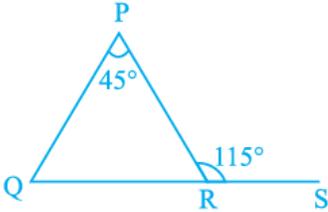
## CHAPTER 6--THE TRIANGLE AND ITS PROPERTIES

1.

**Choose the correct answer:**

(i) In the given figure, side QR of a  $\triangle PQR$  has been produced to the point S. If  $\angle PRS = 115^\circ$  and  $\angle P = 45^\circ$ , then  $\angle Q$  is equal to,

- (a)  $70^\circ$       (b)  $105^\circ$       (c)  $51^\circ$       (d)  $80^\circ$

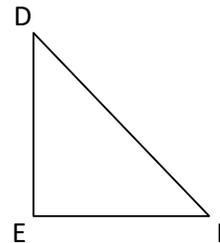


(ii) Which of the following cannot be the sides of a triangle?

- (a) 3 cm, 4 cm, 5 cm      (b) 2 cm, 4 cm, 6 cm  
(c) 2.5 cm, 3.5 cm, 4.5 cm      (d) 2.3 cm, 6.4 cm, 5.2 cm

(iv) Triangle DEF of given figure is a right triangle with  $\angle E = 90^\circ$ . What type of angles are  $\angle D$  and  $\angle F$ ?

- (a) They are equal angles  
(b) They form a pair of adjacent angles  
(c) They are complementary angles  
(d) They are supplementary angles



(v) In an isosceles triangle, one angle is  $70^\circ$ . The other two angles are of

- (a)  $55^\circ$  and  $55^\circ$       (b)  $70^\circ$  and  $40^\circ$       (c) any measure

(vi) Lengths of sides of a triangle are 3 cm, 4 cm and 5 cm. The triangle is

- (a) Obtuse angled triangle      (b) Acute-angled triangle  
(c) Right-angled triangle      (d) An Isosceles right triangle

(vii) In  $\triangle ABC$ ,

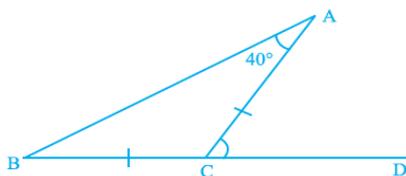
- (a)  $AB + BC > AC$       (b)  $AB + BC < AC$   
(c)  $AB + AC < BC$       (d)  $AC + BC < AB$

(vii) If two angles of a triangle are  $60^\circ$  each, then the triangle is

- (a) Isosceles but not equilateral      (b) Scalene  
(c) Equilateral      (d) Right-angled

(viii) In the given figure,  $BC = CA$  and  $\angle A = 40$ . Then,  $\angle ACD$  is equal to

- (a)  $40^\circ$       (b)  $80^\circ$   
(c)  $120^\circ$       (d)  $60^\circ$



(ix) Which of the following can be the length of the third side of a triangle whose sides measure 18 cm and 14 cm?

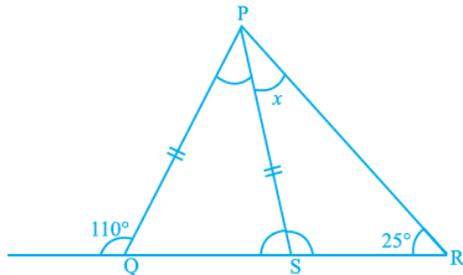
- (a) 4 cm      (b) 3 cm      (c) 5 cm      (d) 32 cm

(x) How many altitudes does a triangle have?

- (a) 1      (b) 3      (c) 6      (d) 9

(xi) In given figure,  $PQ = PS$ . The value of  $x$  is

- (a)  $35^\circ$       (b)  $45^\circ$       (c)  $55^\circ$       (d)  $70^\circ$



(xii) In a right-angled triangle, the angles other than the right angle are

- (a) obtuse      (b) right      (c) acute      (d) straight

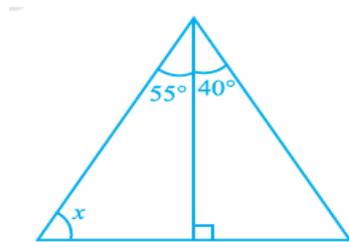
2. Fill in the blanks

- (i) The \_\_\_\_\_ triangle always has altitude outside itself.  
(ii) The longest side of a right angled triangle is called its \_\_\_\_\_.  
(iii) Median is also called \_\_\_\_\_ in an equilateral triangle.  
(iv) If one angle of a triangle is equal to the sum of other two, then the measure of that angle is \_\_\_\_\_.  
(v) Every triangle has at least \_\_\_\_\_ acute angle (s).  
(vi) The line segment joining a vertex of a triangle to the mid-point of its opposite side is called its \_\_\_\_\_.

3. State whether the statements are True or False.

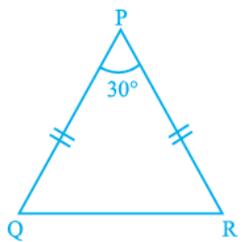
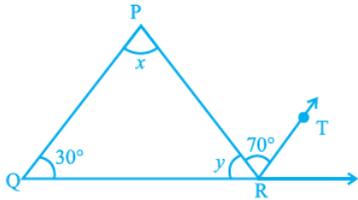
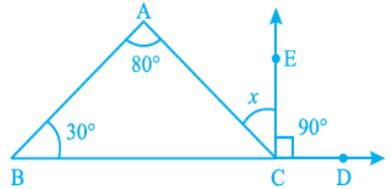
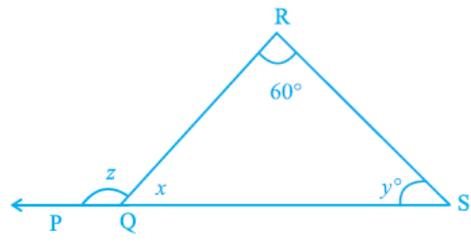
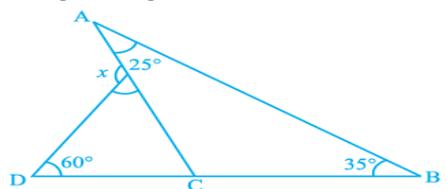
- (i) Sum of two sides of a triangle is greater than or equal to the third.  
(ii) In a triangle, sum of squares of two sides is equal to the square of the third side.  
(iii) It is possible to have a right angled equilateral triangle.  
(iv) Sum of two angles of a triangle is always greater than third angle.  
(v) Altitude of a triangle can never lie in the exterior of the triangle.  
(vi) It is possible to have a triangle in which two angles are acute.

4. In given figure, find the value of  $x$ .

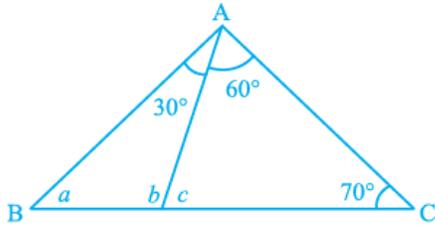


5. The measure of three angles of a triangle are in the ratio 5 : 3 : 1. Find the measures of these angles.

6. Rahul walks 6 km due east and then 8 km due north. How far is he from her starting place?

7.	<p>In given <math>\triangle PQR</math>, <math>PQ = PR</math>. Find the measures of <math>\angle Q</math> and <math>\angle R</math>.</p> 
8.	<p>In given figure, <math>QP \parallel RT</math>. Find the values of <math>x</math> and <math>y</math>.</p> 
9.	<p>Find the value of <math>x</math> in given figure.</p> 
10.	<p>Check whether the following measures (in cm) can be the sides of a right-angled triangle or not. 1.5cm, 3.6cm, 3.9cm</p>
11.	<p>Two poles of 10 m and 15 m stand upright on a plane ground. If the distance between the tops is 13 m, find the distance between their feet.</p>
12.	<p>The foot of a ladder is 6 m away from its wall and its top reaches a window 8 m above the ground, (a) Find the length of the ladder. (b) If the ladder is shifted in such a way that its foot is 8 m away from the wall, to what height does its top reach?</p>
13.	<p>In given figure, if <math>y</math> is five times <math>x</math>, find the value of <math>z</math></p> 
14.	<p>In the given figure find the value of <math>x</math></p> 

15. In the given figure find the value of a, b and c.



## CHAPTER -7 –CONGRUENCE OF TRIANGLES

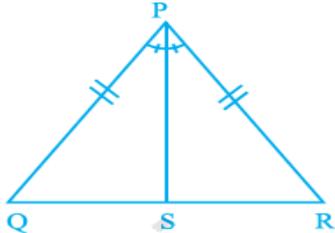
Choose the correct option:

(i) Which one of the following is not a criterion for congruence of two triangles?

- (a) ASA      (b) SSA      (c) SAS      (d) SSS

(ii) In given figure, PS is the bisector of  $\angle P$  and  $PQ = PR$ . Then  $\triangle PRS$  and  $\triangle PQS$  are congruent by the criterion

- (a) AAA      (b) SAS      (c) ASA      (d) both (b) and (c)



(iii) If  $\triangle ABC$  is congruent to  $\triangle DEF$  and if  $AB = 3 = DE$  and  $BC = EF = 4$ , then necessary condition is

- (a)  $\angle A = \angle D$     (b)  $\angle B = \angle E$     (c)  $\angle C = \angle F$     (d)  $CA = FD$

(iv) If  $\triangle ABC$  is congruent to  $\triangle DEF$  and  $\angle B = \angle E$ ,  $\angle C = \angle F$ , then

- (a)  $AB = DF$       (b)  $BC = EF$       (c)  $CA = ED$       (d)  $\angle A = \angle D$

(v) Two triangles are congruent, if two angles and the side included between them in one of the triangles are equal to the two angles and the side included between them of the other triangle. This is known as the

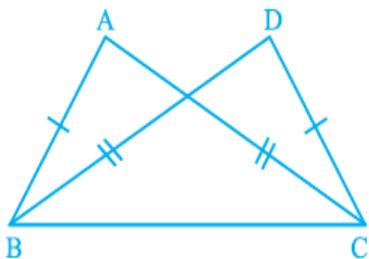
- (a) RHS congruence criterion  
(b) ASA congruence criterion  
(c) SAS congruence criterion  
(d) AAA congruence criterion

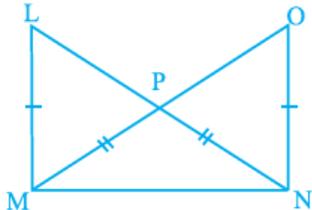
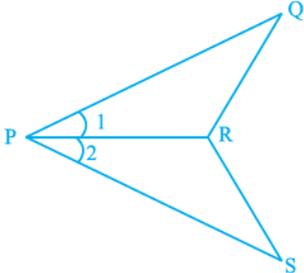
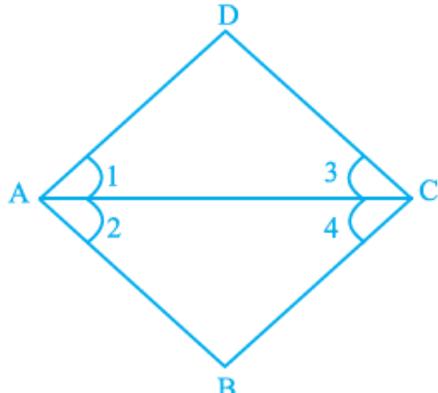
(vi) If for  $\triangle ABC$  and  $\triangle DEF$ , the correspondence  $CAB \leftrightarrow EDF$  gives a congruence, then which of the following is not true?

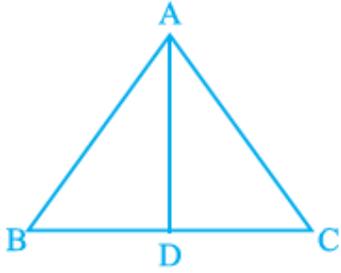
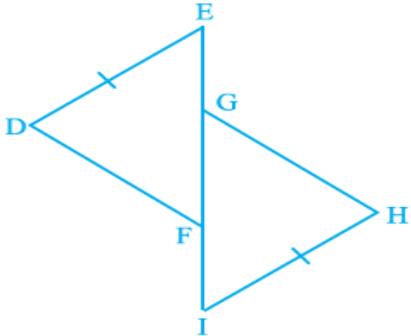
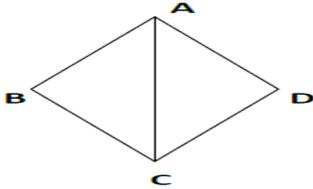
- (a)  $AC = DE$       (b)  $AB = EF$   
(c)  $\angle A = \angle D$       (d)  $\angle C = \angle E$

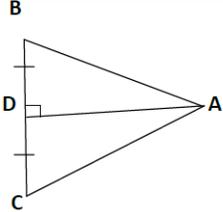
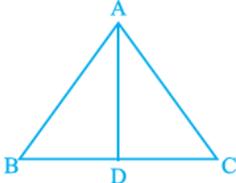
(vii) If  $\triangle ABC$  and  $\triangle DBC$  are on the same base BC,  $AB = DC$  and  $AC = DB$ , then which of the following gives a congruence relationship?

- (a)  $\triangle ABC \cong \triangle DBC$       (b)  $\triangle ABC \cong \triangle CBD$   
(c)  $\triangle ABC \cong \triangle DCB$       (d)  $\triangle ABC \cong \triangle BCD$



2.	<p>Fill in the blanks</p> <p>(i) Two line segments are congruent, if they are of _____ lengths.</p> <p>(ii) Two angles are said to be _____, if they have equal measures</p> <p>(iii) Two circles are congruent if they have same _____</p> <p>(iv) If <math>\triangle PQR</math> and <math>\triangle XYZ</math> are congruent under the correspondence <math>QPR \leftrightarrow XYZ</math>, then</p> <p>(a) <math>\angle R =</math>      (b) <math>QR =</math>      (c) <math>\angle P =</math>      (d) <math>QP =</math>      (e) <math>\angle Q =</math> (f) <math>RP =</math></p>
3.	<p>State whether the statements are True or False.</p> <p>(i) If two triangles are congruent, then the corresponding angles are equal.</p> <p>(ii) If two angles and a side of a triangle are equal to two angles and side of another triangle, then the triangles are congruent.</p> <p>(iii) If three angles of two triangles are equal, triangles are congruent.</p> <p>(iv) If in <math>\triangle ABC</math> and <math>\triangle DEF</math>, <math>AB = DE, \angle A = \angle D</math> and <math>BC = EF</math> then the two triangle <math>ABC</math> and <math>DEF</math> are congruent by SAS criterion</p> <p>(v) Two figures are congruent, if they have the same shape.</p> <p>(vii). If the areas of two squares is same, they are congruent</p>
4.	<p>In figure below, it is given that <math>LM = ON</math> and <math>NL = MO</math></p> <p>(a) State the three pairs of equal parts in the triangles <math>NOM</math> and <math>MLN</math>.</p> <p>(b) Is <math>\triangle NOM \cong \triangle MLN</math>. Give reason?</p> 
5.	<p>In Fig. 6.51, <math>PQ = PS</math> and <math>\angle 1 = \angle 2</math>.</p> <p>(i) Is <math>\triangle PQR \cong \triangle PSR</math>? Give reasons.</p> <p>(ii) Is <math>QR = SR</math>? Give reasons.</p> 
6.	<p>In Fig. 6.53, <math>\angle 1 = \angle 2</math> and <math>\angle 3 = \angle 4</math>.</p> <p>(i) Is <math>\triangle ADC \cong \triangle ABC</math>? Why?</p> <p>(ii) Show that <math>AD = AB</math> and <math>CD = CB</math>.</p> 

7.	<p>ABC is an isosceles triangle with <math>AB = AC</math> and D is the mid-point of base BC.</p> <p>(a) State three pairs of equal parts in the triangles ABD and ACD.</p> <p>(b) Is <math>\triangle ABD \cong \triangle ACD</math>. If so why?</p> 
8.	<p>Triangles DEF and LMN are both isosceles with <math>DE = DF</math> and <math>LM = LN</math>, respectively. If <math>DE = LM</math> and <math>EF = MN</math>, then, are the two triangles congruent? Which condition do you use? If <math>\angle E = 40^\circ</math>, what is the measure of <math>\angle N</math>?</p>
9.	<p>State which of the following pairs of triangles are congruent. If yes, write them in symbolic form (you may draw a rough figure).</p> <p>(a) <math>\triangle PQR</math> : <math>PQ = 3.5</math> cm, <math>QR = 4.0</math> cm, <math>\angle Q = 60^\circ</math>  <math>\triangle STU</math> : <math>ST = 3.5</math> cm, <math>TU = 4</math> cm, <math>\angle T = 60^\circ</math></p> <p>(b) <math>\triangle ABC</math> : <math>AB = 4.8</math> cm, <math>\angle A = 90^\circ</math>, <math>AC = 6.8</math> cm  <math>\triangle XYZ</math> : <math>YZ = 6.8</math> cm, <math>\angle X = 90^\circ</math>, <math>ZX = 4.8</math> cm</p>
10.	<p>In Fig. 6.52, <math>DE = IH</math>, <math>EG = FI</math> and <math>\angle E = \angle I</math>. Is <math>\triangle DEF \cong \triangle HIG</math>? If yes, by which congruence criterion?</p> 
11.	<p>ABCD is a rhombus. AC is a diagonal.</p> <p>(i) Show three pair of equal parts, giving reasons in <math>\triangle ABC</math> and <math>\triangle ADC</math>?</p> <p>(ii) Is <math>\triangle ABC \cong \triangle ADC</math>? Give reason.</p> <p>(iii) Is <math>\angle BAC = \angle DAC</math>? Give reason.</p> 
12.	<p>ABCD is a rectangle. AC is a diagonal. By using congruence rule show that <math>\triangle ABC \cong \triangle CDA</math>.</p>
13.	<p>In the given figure AD BC. D is the mid-point of BC. Show that</p> <p>(i) <math>\triangle ABD \cong \triangle ACD</math></p> <p>(ii) Is <math>AB = AC</math>? Why?</p>

	
14.	<p>In <math>\triangle ABC</math>, <math>AB = AC</math> and <math>AD</math> is bisector of <math>\angle BAC</math>.</p> <p>(i) State three pairs of equal parts in <math>\triangle ADB</math> and <math>\triangle ADC</math>.</p> <p>(ii) Is <math>\triangle ADB \cong \triangle ADC</math>?</p> 
15.	Which angle is included between $DE$ and $EF$ in $\triangle DEF$ ?

CH – 8 - COMPARING QUANTITIES	
1.	<p><b>Choose the correct option</b></p> <p>(i) The ratio 2 : 5 as rate per cent is            (a) 4%                      (b) 0.4%                      (c) 40%                      (d) 14%</p> <p>(ii) What per cent of 1 day is 36 minutes?            (a) 25%                      (b) 2.5%                      (c) 3.6%                      (d) 0.25%</p>

	<p>(iii) A number decreased by 8% gives 69. The number is            (a) 80                    (b) 75                    (c) 85                    (d) none of these</p> <p>(iv) In an examination, 95% of the total examinees passed. If the number of failures is 28, how many examinees were there?            (a) 600                    (b) 480                    (c) 560                    (d) 840</p> <p>(v) On selling a racket for Rs. 198, a shopkeeper gains 10%. The cost price of the racket is            (a) Rs. 180                    (b) Rs. 178.20                    (c) Rs. 217.80                    (d) Rs.212.50</p> <p>(vi) If the cost price of the 12 pencils is equal to the selling price of 15 pencils, then the loss% is            (a) 20%                    (b) 25%                    (c) 3%                    (d) <math>16\frac{2}{3}\%</math></p> <p>(vii) On selling an article for Rs. 144 a man loses 10%. At what price should he sell it to gain 10%?            (a) Rs. 158.40                    (b) Rs. 172.80                    (c) Rs. 176                    (d) Rs. 192</p> <p>(viii) At what rate per cent per annum simple interest will a sum double itself in 10 years?            (a) 8%                    (b) 10%                    (c) 12%                    (d) <math>12\frac{1}{2}\%</math></p> <p>(ix) The simple interest at x% per annum for x years will be Rs. X on a sum of            (a) Rs. x                    (b) Rs. 100x                    (c) Rs. <math>(\frac{100}{x})</math>                    (d) Rs. <math>(\frac{100}{2x})</math></p> <p>(x) In how much time would the simple interest on a certain sum be 0.125 times the principal at 10% per annum?            (a) <math>1\frac{1}{4}</math> years                    (b) <math>1\frac{3}{4}</math> years                    (c) <math>2\frac{1}{4}</math> years                    (d) <math>2\frac{3}{4}</math> years</p>
2.	<p><b>Fill in the blanks</b></p> <p>(i) If x decreased by 40% gives 135, then x = _____.</p> <p>(ii) <math>0.75 = (\dots\dots\dots)\%</math>.</p> <p>(iii) <math>\frac{100}{(100-loss\%)} \times SP = \dots\dots\dots</math>.</p> <p>(iv) At (_____)% per annum simple interest a sum double itself in 10 years.</p> <p>(v) At simple interest a sum becomes <math>\frac{6}{5}</math> of itself in <math>2\frac{1}{2}</math> years. The rate of interest is (_____)%.</p>
3.	<p><b>Write True or False:</b></p> <p>(i) <math>\frac{3}{4}</math> as per cent is 75%.</p>

	<p>(ii) <math>12\frac{1}{2}\%</math> expressed as a fraction is <math>\frac{1}{8}</math>.</p> <p>(iii) <math>80\%</math> of 450 = 360.</p> <p>(iv) Loss = (CP) – (SP).</p> <p>(v) Simple interest on Rs. 1000 at 5% per annum for 73 days is Rs.10.</p>
4.	<p>Convert:</p> <p>(i) <math>\frac{4}{5}</math> into a percentage</p> <p>(ii) 45% into a fraction</p> <p>(iii) 15% as a ratio</p> <p>(iv) 12 : 25 into a percentage</p>
5.	<p>Do as directed:</p> <p>(i) What per cent of 1 kg is 125g?</p> <p>(ii) What percent of 80 m is 24 m?</p>
6.	On selling a watch for Rs. 11400, a shopkeeper loses 5%. For how much did he purchase it?
7.	96% of the cost of a TV is Rs. 10464. What is its total cost?
8.	Manoj sells two cycles for Rs. 2376 each. On one cycle he gains 10% and on the other he loses 10%. Find his gain or loss per cent.
9.	On selling a fan for Rs. 2585 a man gains $\frac{1}{10}$ of its cost price. Find the cost price of the fan.
10.	A man buys lemons at 6 for Rs.10 and sells at 8 for Rs. 15. Find his gain per cent.
11.	At what rate of interest will Rs. 6500 get doubled, in period of 10 years?
12.	Anu borrowed Rs. 4000 from a bank at 7% per annum for 2 years. She then lent this amount to Nidhi at 9% per annum for the same period. How much did Anu gain in this transaction?
13.	Arun borrowed Rs. 7000 at 12% per annum. Find the interest to be paid after 4 years.
14.	Divide Rs. 3600 into two parts such that if on part be lent at 9% per annum and the other at 10% per annum, the total annual income is Rs. 333.
15.	In what time will Rs. 5600 amount to Rs. 6720 at 8% per annum?
16.	A bicycle is purchased for Rs. 1800 and is sold at a profit of 12%. Find its selling

	price.
17.	The value of a car decreases annually by 20%. If the present value of the car be Rs. 450000, what will be its value after 2 years?
18.	The population of a town increases 10% annually. If its present population is 60000, what will be its population after 2 years?
19.	In an examination, 72% of the total examinees passed. If the number of failures is 392, find the total number of examinees.
20.	A number is increased by 10% and the increased number is decreased by 20%. Find the net Increase or decrease per cent.

# QUESTION BANK

## CLASS – VII

### CHAPTER – 1. INTEGERS

1. When zero is subtracted from an integer, we get:			
a. 1	b. 0	c. The inverse of the number	d. The same number
2. $(-43) \times (-99) + 43$ is equal to:			
a. 4300	b. -4300	c. 4257	d. -4214
3. Which of the following does not represent an integer?			
a. $0 \div (-7)$	b. $20 \div (-4)$	c. $(-9) \div 3$	d. $(-12) \div 5$
4. Next three consecutive numbers in the pattern 11, 8, 5, 2..... are:			
a. 0, -3, -4	b. -1, -5, -8	c. -2, -5, -8	d. -1, -4, -7
5. Which of the following is different from the others?			
a. $20 + (-25)$	b. $(-37) - (-32)$	c. $(-5) \times (-1)$	d. $45 \div (-9)$
6. The value of $(-2) \times (-1) \times 1$ is:			
a. 1	b. 3	c. -4	d. 2
7. $[(-8) \times (-3)] \times (-4)$ is not equal to:			
a. $(-8) \times [(-3) \times (-4)]$	b. $[(-8) \times (-3)] \times (-4)$	c. $[(-3) \times (-8)] \times (-4)$	d. $(-8) \times (-3) \times -(-8) \times (-4)$
8. The value of $[(-6) + 2] \div 2$ is:			
a. $\frac{1}{2}$	b. $\frac{1}{3}$	c. $\frac{1}{4}$	d. -2

9. Suppose we represent the distance above the ground by a positive integer and that below the ground by a negative integer, then answer the following:
- An elevator descends into a mine shaft at the rate of 5m/min. What will be its position after one hour?
  - If it begins to descend from 15m above the ground, what will be its position after 45min?
10. In a class test containing 15 questions, 4 marks are given for every correct answer and ( -2) marks are given for every incorrect answer
- Nitin attempts all questions but only 9 of his answers are correct. What is his total score?
  - One of his friends gets only 5 answers correct. What will be his score?
11. Write a negative integer and a positive integer whose difference is ( -14)
12. A grocer had a profit of Rs.47 on Monday, a loss of Rs.12 on Tuesday and a loss of Rs.8 on Wednesday. Find his net profit or loss in 3 days
13. The highest point measured above sea level is the summit of Mt. Everest, which is 8848m above sea level and the lowest point is challenger deep at the bottom of Mariana Trench, which is 10911m below sea level. What is the vertical distance between these two points?
14. Verify  $-a + (-b) = -(a + b)$  for the following values of a and b:
- $a = 137, b = 49$
  - $a = 141, b = -39$
15. A child was suffering from high fever since Monday. On Monday evening, his father consulted doctor to take medicine. After taking medicine in three days child's temperature came down to  $5^{\circ}\text{F}$ . On Wednesday his body temperature was  $96.4^{\circ}\text{F}$  in the morning. Calculate the temperature of the child on Monday (before consulting the doctor).

## CHAPTER – 2. FRACTIONS AND DECIMALS

1. The product of $\frac{11}{13}$ and 4 is:			
a. $3\frac{5}{13}$	b. $5\frac{3}{13}$	c. $13\frac{5}{5}$	d. $13\frac{5}{3}$
2. In the year 2014, Shantanu gets Rs.3832.5 as his pocket allowance. Find his pocket allowance per day.			
a. Rs.9.5	b. Rs. 10.5	c. Rs.12.5	d. Rs. 11.5
3. How many pieces of 13.2cm can be cut from a 330cm long rod?			
a. 25	b. 28	c. 21	d. 35
4. $\frac{5}{12}$ part of what amount will be equal to $3\frac{3}{4}$ part of Rs.100?			
a. Rs.900	b. Rs.940	c. Rs. 875	d. Rs. 925
5. Which of the following represents $\frac{1}{3}$ of $\frac{1}{6}$ ?			
a. $\frac{1}{3} + \frac{1}{6}$	b. $\frac{1}{3} - \frac{1}{6}$	c. $\frac{1}{3} \times \frac{1}{6}$	d. $\frac{1}{3} \div \frac{1}{6}$

6. Simplify:  $2\frac{2}{3} + 12\frac{2}{4} + 5\frac{1}{2}$

7. Evaluate  $(0.3) \times (0.3) - (0.2) \times (0.2)$

8. Evaluate  $\frac{0.6}{0.3} + \frac{0.16}{0.4}$

9. Rohan is dividing  $1\frac{3}{4}$  kg of sweets equally among his seven friends. How much does each friend receive?

10.  $\frac{4}{5}$  of 5 kg apples were used on Monday. The next day,  $\frac{1}{3}$  of what was left was used. Find the weight (in kg ) of apples left now.

11. In a school,  $\frac{5}{6}$  of the students are boys. If there are 240 girls, then find the number of boys in the school.

12. In the morning a milkman filled  $5\frac{1}{2}$  litres of milk in his can. He sold to Renu, Riya and Nitu  $\frac{3}{4}$  litres. To Sheena , he sold  $\frac{7}{8}$  litre and to Jiya he gave  $1\frac{1}{2}$  litres. How much milk is left in the can?

13. Check if the following is a magical square or not

$\frac{9}{13}$	$\frac{2}{13}$	$\frac{3}{13}$
$\frac{7}{13}$	$\frac{1}{13}$	$\frac{6}{13}$
$\frac{7}{13}$	$\frac{2}{13}$	$\frac{5}{13}$

14. In a class of 80 students,  $\frac{1}{5}$  of the total number of students like to study English,  $\frac{2}{5}$  of the total like to study Science and remaining like to study Mathematics:

- i) How many students like to study English?
- ii) How many students like to study Science?
- iii) What fraction of the total number of students like to study Mathematics?

15. i) Convert  $\frac{9}{20} + \frac{1}{4}$  into decimal form.

- ii)  $A + 0.01 = 8$ , so  $A = ?$

### CHAPTER – 3. DATA HANDLING

1. Find the mode, mean, median and range of the following data:  
4, 5, 5, 3, 9, 2, 6, 4, 19
2. A dice is thrown. Find the probability of getting a number greater than or equal to 3.
3. Define a bar graph.
4. If the mean of 6 observations is 4, then their sum is \_ \_ \_ \_ \_
5. Mean can never be a fraction. ( T/F)
6. Median of the data may or may not be from the given data. (T/F)
7. If a dice is thrown, then the probability of getting a number greater than 6 is \_ \_ \_ \_ \_
8. If the mean of the data 16, 8, 2, 6, x, 0, 4, 6 is 5, then find x.
9. In a public library, the following observations were recorded by the librarian in a particular week:

Days	Mon	Tue	Wed	Thu	Fri	Sat
Newspaper readers	400	600	350	550	500	350
Magazine readers	150	100	200	300	250	200

- a) Draw a double bar graph choosing an appropriate scale.
  - b) On which day, the number of readers in the library was maximum?
  - c) What is the mean number of magazine readers?
10. Find the mean of :
    - i) First five prime numbers.
    - ii) First ten composite numbers.
    - iii) First five multiples of 6.
    - iv) All the factors of 24.

11. Find the range of the data 14, 6, 11, 12, 13, 17, 21, 10, 10 and 3.
12. Find the mode of the data 23, 26, 22, 29, 23, 29, 26, 29, 22 and 23.
13. Find the median of the data 40, 50, 99, 68, 98, 60 and 94.
14. A survey of 150 girls showed that 63 like tea while rest dislike it. Out of these girls, one girl is chosen at random. What is the probability that the chosen girl i) like tea? ii) dislike tea?
15. Classify the following as certain to happen, impossible to happen, may or may not happen:
  - i) Getting a two digit number on throwing a dice.
  - ii) Getting head and tail when a coin is tossed once.
  - iii) Sum of two numbers is odd.
  - iv) Ramesh wins a lottery.
  - v) Getting a number between 1 and 6 on throwing a dice.

## CHAPTER – 4. SIMPLE EQUATIONS

1. Find the value of  $n$  if  $\frac{2}{n} = \frac{12}{9}$ .
2. Solve:  $5p + 10 = 100$ .
3. Solve:  $5(2m - 6) = 12$ .
4. Solve :  $2y + \frac{7}{2} = \frac{35}{2}$ .
5. If  $k + 7 = 16$ , then the value of  $8k - 72$  is equal to \_\_\_ \_ \_
6. What value of  $x$  satisfies the equation  $-6 + x = -18$
7. If  $\frac{x}{2} = 14$ , then the value of  $2x + 6$  is equal to \_ \_ \_ \_ \_
8. Write  $p$  exceeding 3 by 7 in equation form.
9. Sonu and Navin donate some money in a relief fund. The amount paid by Navin is Rs.125 more than that of Sonu. If the total money paid by them is Rs. 975, then find the amount of money donated by Sonu.
10. Anamika thought of a number. She multiplied it by 2, added 5 to the product and obtained 17 as the result. What is the number she had thought of?
11. The perimeter of a rectangle is 40m. The length of the rectangle is 4m less than 5 times its breadth. Find the length of the rectangle.
12. In a school, the number of girls is 50 more than the number of boys. The total number of students is 1070. Find the number of girls.
13. Write equations for the following statements:
  - i) The sum of numbers  $x$  and 5 is 9
  - ii) 2 subtracted from  $y$  is 6
  - iii) Ten times  $a$  is 90
  - iv) Three fourth of  $m$  is 14

14. Solve the equation  $3(x + 3) - 2(x - 1) = 5(x - 5)$
15. If  $2(k + 1) = 19$ , then the value of  $6k - 3$  is 32

-----XXXXXXXXXXXX-----

# QUESTION BANK

## Class-VII

### Chapter-13 Exponents and Powers

Choose the correct answer:-

Q1. The value of  $11^2$  is

- (a) 211 (b) 112 (c) 22 (d) 121

Q2. 2000 can be written as

- (a)  $2 \times 10^2$  (b)  $2 \times 10^3$  (c)  $20^3$  (d) None of these

Q3.  $b^2 \times b^3$  will be

- (a)  $2b^2$  (b)  $b^6$  (c)  $b^5$  (d)  $2b^5$

Q4.  $a^8 \div a^3$  will be

- (a)  $a^{83}$  (b)  $a^5$  (c)  $a^{11}$  (d)  $a^0$

Q5. 64 can be written as

- (a)  $2^6$  (b)  $2^8$  (c)  $4^6$  (d)  $6^4$

Q6.  $(-1)^{23}$  will be

- (a) -1 (b) 1 (c) 23 (d) 0

Q7.  $45^0 + 19^0$  is the same as

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

Q8. Which of the following is in the scientific notation?

- (a)  $0.9 \times 10^3$  (b)  $0.09 \times 10^{-3}$  (c)  $9.9 \times 10^4$  (d)  $0.9 \times 10^{-3}$

Q9. Write in the form of exponential notation

(i)  $(-1) \times (-1) \times (-1) \times (-1) \times (-1)$

(ii)  $m \times m \times m \times m \times m \times m$

Q10. Simplify and write in the exponential notation.

(i)  $[(-4)^2]^3 \times (-4)^3$

(ii)  $(7^2)^4 \div 7^5$

(iii)  $7^9 \times (-1)^9$

(iv)  $[(-6)^2]^4 \div (-6)^6$

Q11. Find the value of the following:-

(i)  $\frac{(-3)^4 \times (-3)^3}{(-3)^6}$

(ii)  $\frac{6^3 \times 4^3}{(24)^2}$

(iii)  $[(-7)^0]^8 + (-1)^{60}$

Q12. Write the following in exponential form:-

(i) 6    (ii) 20    (iii) 1    (iv) -1

Q13. Put > or < sign in the boxes:-

(i)  $(-1)^{27}$    $(-1)^{14}$

(ii)  $(285)^0$    $(-3)^2$

(iii)  $7^2$    $2^7$

(iv)  $(-9)^4 \times 0$    $(-1)^{49}$

Q14. Express the number 1 in the exponential form with 5 different bases.

Q15. Which is greater,  $2^3 \times 2^4$  or  $3^2 \times 4^2$  and by how much?

## Chapter14 Symmetry

**Choose the correct answer (Q1. to Q8.)**

Q1. The letters of the alphabet which have no axes of symmetry are

- (a) A, B      (b) M, W      (c) F, G      (d) O, H

Q2. The number of axes of symmetry for a square are

- (a) 2      (b) 4      (c) 1      (d) 0

Q3. The number of axes of symmetry for a rectangle are

- (a) 2      (b) 1      (c) 0      (d) 4

Q4. The mirror image of  will be

- (a)       (b)       (c)       (d) 

Q5. Every object has a rotational symmetry of order

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

Q6. After rotating through an angle of  $90^\circ$ ,  will look like

- (a)       (b)       (c)       (d) 

Q7. The order of rotational symmetry for a square is

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

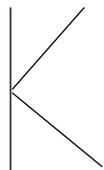
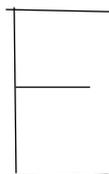
Q8. The order of rotational symmetry for circle is

- (a) 3      (b) 4      (c) Infinite      (d) 0

Q9. Draw a letter of the English alphabet with

- (i) no axis of symmetry
- (ii) one axis of symmetry
- (iii) two axes of symmetry

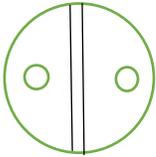
Q10. Draw the mirror images of the following:-



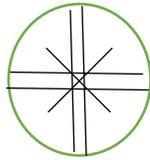
Q11. Write the names of the zodiac signs which have a line of symmetry.

Q12. Will the following figure have the same order of rotational symmetry?

(a)



(b)



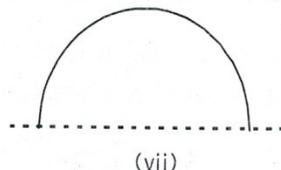
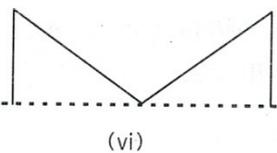
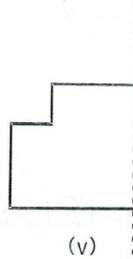
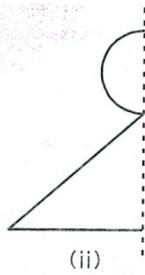
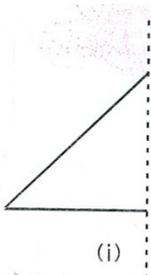
(c)



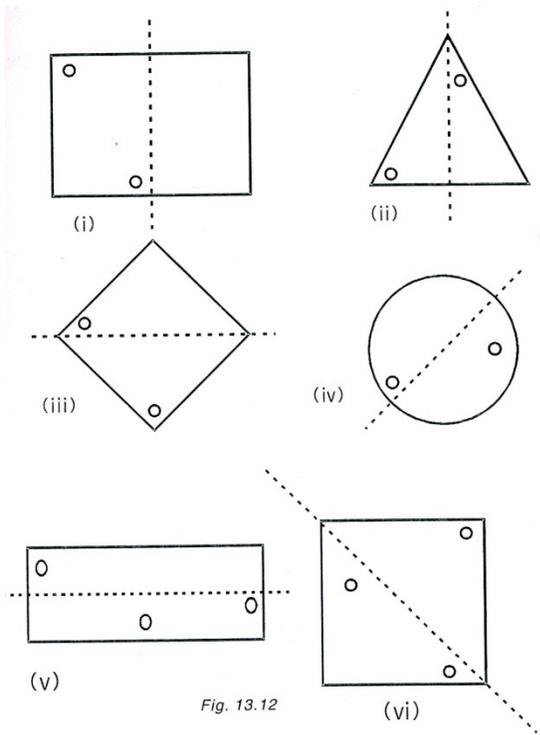
(d)



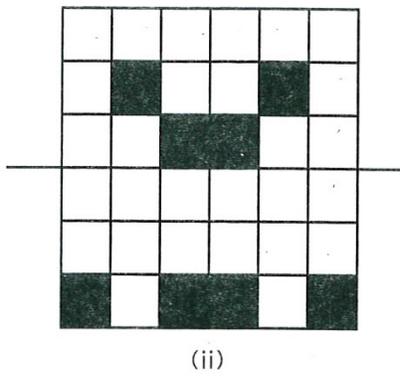
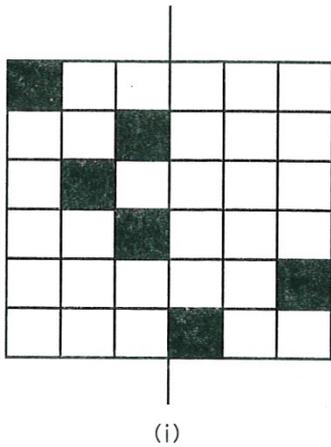
Q13. Complete the figure by performing reflection. The dotted line is the mirror line.



Q14. If the dotted line is the line of symmetry then complete the figure by drawing the other holes.



Q15. Shade the square to make the figure symmetrical about the axis show.



**Choose the correct answer (Q1 to Q8)**

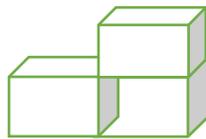
Q1. The number of faces in a square pyramid are

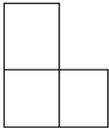
- (a) 8      (b) 6      (c) 2      (d) 1

Q2. To represent 3-D figures on paper, we use

- (a) oblique sketches   (b) isometric paper   (c) perspective   (d) All of these

Q3. The top view of

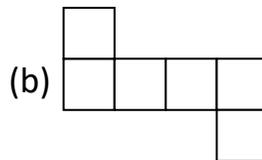
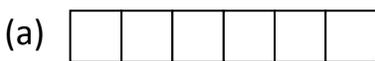


- (a)       (b)       (c)       (d) 

Q4. A sheet of paper  $10\text{cm} \times 20\text{cm}$  is rolled along the  $20\text{cm}$  edge. The resulting shape will be

- (a) sphere      (b) cone      (c) cylinder      (d) None of these

Q5. The net for a cube can be



Q6. A solid with one with one face is

- (a) cylinder      (b) cuboid      (c) cone      (d) sphere

Q7. A solid with one curved and one flat face is

- (a) sphere      (b) pyramid      (c) prism      (d) cone

Q8. The number of edges in a tetrahedron are

- (a) 8      (b) 5      (c) 4      (d) 6

Q9. Name the solid which has

- (i) six plane faces which are congruent squares.
- (ii) no flat surface.
- (iii) one square face and four triangular faces.
- (iv) two circular faces and one curved face.

(v) one circular and one curved face.

Q10. Fill in the blanks:-

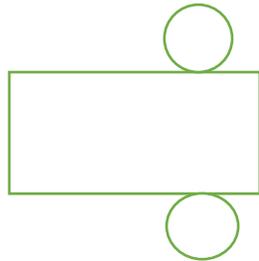
(i) A cuboid has \_\_\_\_\_ faces, \_\_\_\_\_ edges and \_\_\_\_\_ vertices.

(ii) The faces of a cube are \_\_\_\_\_ and the faces of a cuboid are \_\_\_\_\_.

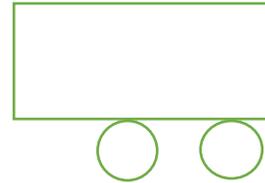
Q11. Match the correct net for the following:-

(i) Cylinder

(a)

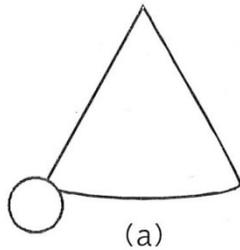


(b)

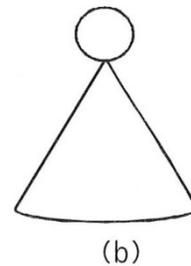


(ii) Cone

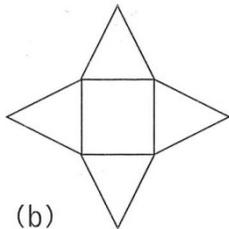
(a)



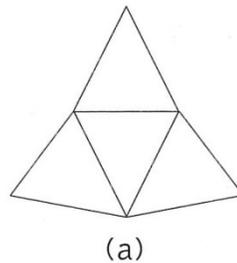
(b)



(iii) Pyramid (with square base)



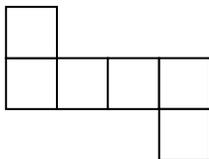
(b)



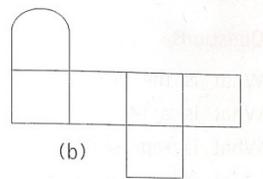
(a)

(iv) Cube

a)



b)





Q14. Complete the net of a cube



Q15. Complete the net for a square pyramid

