

**SUMMATIVE ASSESSMENT - I, 2014**  
**MATHEMATICS**  
**Class - IX**

Time Allowed: 3 hours

Maximum Marks: 90

**General Instructions:**

1. All questions are compulsory.
2. The question paper consists of 31 questions divided into four sections A, B, C and D. Section-A comprises of 4 questions of 1 mark each; Section-B comprises of 6 questions of 2 marks each; Section-C comprises of 10 questions of 3 marks each and Section-D comprises of 11 questions of 4 marks each.
3. There is no overall choice in this question paper.
4. Use of calculator is not permitted.

**SECTION-A**

Question numbers 1 to 4 carry one mark each

- |   |                                                                                                                                          |   |
|---|------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1 | Simplify: $\frac{17^{\frac{1}{5}}}{17^{\frac{1}{3}}}$                                                                                    | 1 |
| 2 | What is the value of k in the polynomial $x^2 + 8x + k$ , if $-1$ is a zero of the polynomial?                                           | 1 |
| 3 | In a right angled $\Delta ABC$ , if $\angle A = 90^\circ$ , $\angle B = 4y$ and $\angle C = 3y + 6^\circ$ , then find the value of $y$ . | 1 |
| 4 | Find the reflection of the point $(+3, +6)$ in $x$ -axis.                                                                                | 1 |

**SECTION-B**

Question numbers 5 to 10 carry two marks each.

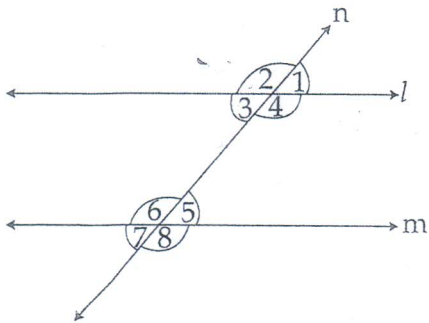
- |   |                                                                                 |   |
|---|---------------------------------------------------------------------------------|---|
| 5 | Is $\pi$ a rational number? Justify your answer.                                | 2 |
| 6 | Without actually calculating the cubes, find the value of $(-15)^3 + 7^3 + 8^3$ | 2 |
| 7 | Write the statement of congruence rule for two right triangles to be congruent. | 2 |

- 8) Give two equivalent versions of Euclid's fifth postulate. 2
- 9) If area of a right angled triangle is  $216 \text{ m}^2$  and base is  $24 \text{ m}$ , find the perimeter of the triangle. 2
- 10) Find distances of following points from  $y$  - axis : 2
- $(3, 0), (0, -3), (2, -5)$  and  $(-3, -1)$

### SECTION-C

Question numbers 11 to 20 carry three marks each.

- 11) Locate  $5\sqrt{2}$  on the number line. 3
- 12) Express  $2.41\overline{78}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ . 3
- 13) Show that  $x^2 + 4x + 4$  is a factor of the polynomial  $x^3 - 2x^2 + 4x + 8$ . 3
- 14) Factorise :  $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$  3
- 15) In the figure, if  $l \parallel m$  and  $n$  is a transversal such that  $\angle 8 : \angle 5 = 13 : 5$ , find all the angles. 3

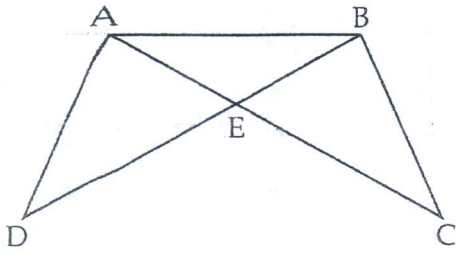


In the given figure, find  $a + b$ .

M-14-2

17

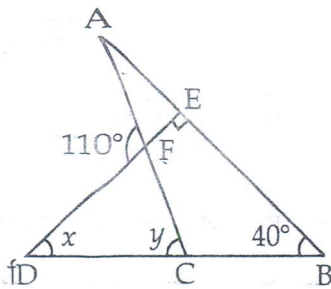
3



In given figure,  $\angle EAB = \angle EBA$  and  $AC = BD$ . Prove that  $AD = BC$ .

18

3



In given figure  $DE \perp AB$ . Find the values of  $x$  and  $y$ .

19

Length of a rectangular field is 15 m and diagonal is of length 17 m. Find its area and the perimeter. 3

20

A triangle and a parallelogram stand on the same base 50 m. If other sides of the triangle are 30 m and 36 m, find the corresponding height of the parallelogram. 3

#### SECTION-D

Question numbers 21 to 31 carry four marks each.

21

4

Rationalise the denominator of  $\frac{1}{\sqrt{2} + \sqrt{3} + \sqrt{5}}$ .

22

4

Divide  $5\sqrt[3]{14}$  by  $15\sqrt[4]{12}$ .

23

4

Factorise :  $x^3 + 13x^2 + 32x + 20$

24

4

If  $a + b + c = 5$  and  $ab + bc + ca = 15$ , find the value of :  
 $(a + b)^3 + (b + c)^3 + (a + c)^3 - 3(a + b)(b + c)(c + a)$ .

