

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 ΔABC , 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.

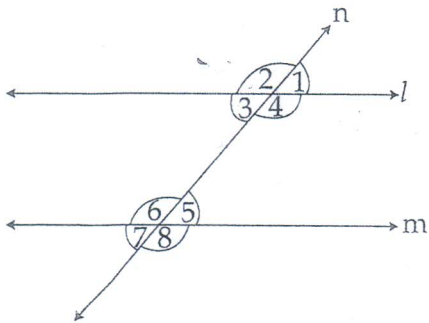
- | | | |
|---|---|---|
| 5 | Is π a rational number? Justify your answer. | 2 |
| 6 | Without actually calculating the cubes, find the value of $(-15)^3 + 7^3 + 8^3$ | 2 |
| 7 | Write the statement of congruence rule for two right triangles to be congruent. | 2 |

- 8) Give two equivalent versions of Euclid's fifth postulate. 2
- 9) If area of a right angled triangle is 216 m^2 and base is 24 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

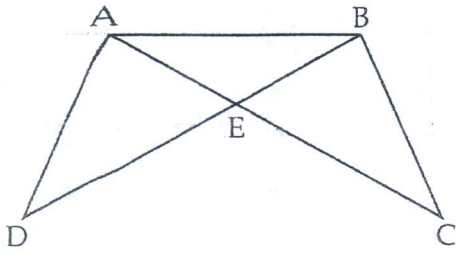


In the given figure, find $a + b$.

M-14-2

17

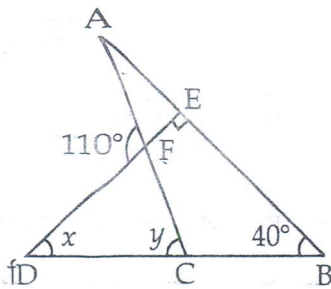
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In given figure, $\angle EAB = \angle EBA$ and $AC = BD$. Prove that $AD = BC$.

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

Rationalise the denominator of $\frac{1}{\sqrt{2} + \sqrt{3} + \sqrt{5}}$. 4

22

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

23

Factorise : $x^3 + 13x^2 + 32x + 20$ 4

24

If $a + b + c = 5$ and $ab + bc + ca = 15$, find the value of : $(a + b)^3 + (b + c)^3 + (a + c)^3 - 3(a + b)(b + c)(c + a)$. 4

