



Class X Mathematics

Pre First Term Test

TIME ALLOWED: ONE HOUR 15 MINUTES

MAXIMUM MARKS: 25

1. The value of $\frac{4}{3}(\cos^2 53^\circ + \tan^2 37^\circ - 2 \cot^2 53^\circ)$ is
a) $\frac{3}{4}$ b) 0 c) $\frac{4}{3}$ d) 1
2. The decimal representation of $\frac{14587}{2^1 \times 5^4}$ will terminate after how many decimal places?
a) 1 b) 2 c) 3 d) 4
3. $\sin A + \cos B = 1$, $A = 30^\circ$ and B is an acute angle, then the value of B is
a) 30° b) 45° c) 60° d) None of these
4. If $x = 2 \sin^2 A$, $y = 2 \cos^2 A + 1$, find $x + y - \frac{1}{2}$
a) $2\frac{1}{2}$ b) 2 c) 1 d) $3\frac{1}{2}$
5. The points on x-axis which are at a distance $2\sqrt{5}$ from the point (7, -4) are
a) (5,0) & (-5,0) b) (9,0) & (-9,0)
c) (5,0) & (9,0) d) (-9,0) & (9,0)
6. The value of k, for which the points (8,1), (k, -4) and (2, -5) are collinear is
a) $\frac{7}{3}$ b) $-\frac{7}{3}$ c) $\frac{5}{3}$ d) $-\frac{5}{3}$
7. All the vertices of a rhombus lie on a circle. The area of the rhombus, if area of the circle is 125 cm^2 (Use $\pi = 3.14$) is
a) 300 cm^2 b) 500 cm^2 c) 600 cm^2 d) 800 cm^2
8. The distance of a point P(x, y) from the origin is
a) x b) $\sqrt{x^2 + y^2}$ c) y d) $\sqrt{x^2 - y^2}$
9. If $A = 30^\circ$ and $B = 45^\circ$, then $\cos(A-B) =$



a) $\cos A \cos B + \sin A \sin B$

b) $\cos A \cos B - \sin A \sin B$

c) $\cos A \sin B + \sin A \cos B$

d) $\cos A \cos B \cos \sin B$

10. A sweet seller has 420 *kaju barfis* and 130 *badam barfis*. She wants to stack them in such a way that each stack has the same number, and they take up the least area of the tray. The maximum number of *barfis* that can be placed in each stack for this purpose is

a) 5

b) 10

c) 15

d) Not possible

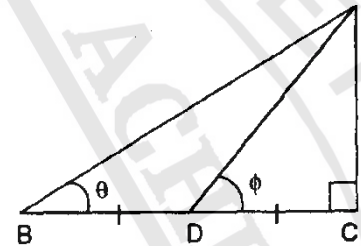
11. In figure, ABC is a right-angled triangle. D is the mid-point of BC. The value of $\tan \theta / \tan \phi$ is

a) 1

b) 2

c) $1/2$

d) $1/3$



12. The expression $\frac{\cot \theta + \operatorname{cosec} \theta - 1}{\cot \theta - \operatorname{cosec} \theta + 1}$ is equal to

a) $\frac{1 + \cos \theta}{\sin \theta}$

b) $\frac{1 - \cos \theta}{\sin \theta}$

c) $\frac{\cos \theta}{1 + \sin \theta}$

d) $\frac{\cos \theta}{1 - \sin \theta}$

13. If $4 \tan \theta = 3$, the value of $\left(\frac{4 \sin \theta - \cos \theta + 1}{4 \sin \theta + \cos \theta - 1} \right)$ will be

a) $\frac{9}{16}$

b) $\frac{3}{7}$

c) $\frac{5}{7}$

d) None of these

14. If $\sin \theta = x$ and $\sec \theta = y$, then $\tan \theta$ is

a) xy

b) x/y

c) y/x

d) $1/xy$

15. In the given figure, $DE \parallel BC$. Which of the following is true?

a) $x = \frac{a+b}{ay}$

b) $y = \frac{ax}{a+b}$

c) $x = \frac{ay}{a+b}$

d) $\frac{x}{y} = \frac{a}{b}$

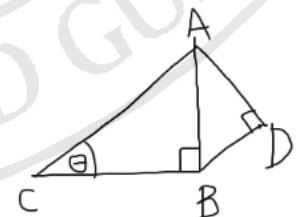
16. In the figure given below, $AD = 4 \text{ cm}$, $BD = 3 \text{ cm}$ and $CB = 12 \text{ cm}$, then $\cot \theta$ equals

a) $3/4$

b) $5/12$

c) $4/3$

d) $12/5$



17. If $\sin \theta = \frac{a}{b}$, then $\tan \theta =$



- a) $\frac{a}{\sqrt{a^2 - b^2}}$ b) $\frac{a}{a^2 + b^2}$ c) $\frac{a}{a^2 - b^2}$ d) None of these

18. ABC is an isosceles triangle, with $AB = AC$. D is a point on AC such that $BC^2 = AC \times CD$, then

- a) $BD = BC$ b) $AC = CD$ c) $BC = AC$ d) $AD = AB$

19. The relation between x and y if the points A(x, y), B(-5, 7) and C(-4, 5) are collinear is

- a) $2x - y = 3$ b) $2x + y = -3$
c) $2x + y = -3$ d) $2x - y = -3$

20. D and E are respectively the points on the sides AB and AC of a triangle ABC such that $AD = 2$ cm, $BD = 3$ cm, $BC = 7.5$ cm and $DE \parallel BC$. Then, length of DE (in cm) is

- a) 2.5 b) 3 c) 5 d) 6