MATHS

BOOKS - UNITED BOOK HOUSE

Trigonometric Rations and Trigonometric Identities

Exercise

1. Multiple Choice Question (MCQ) Maximum value of $\cos\theta$ is

A. -1

B. 0

C. 1

D. none of these.

Answer:

2. If $r\cos\theta = 2\sqrt{3}$, $r\sin\theta = 2$ and $0° < \theta < 90°$, then the value of r and θ are

A. $(2, 60°)$

B. $(4, 30°)$

C. $(4, 60°)$

D. $(2, 30^\wedge @)`.$

Answer:

3. If $\dfrac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = 7$, then the value of $\tan\theta$

is

A. $\dfrac{1}{\sqrt{3}}$

B. $\sqrt{3}$

C. 4/3

D. $\dfrac{2}{\sqrt{3}}$.

Answer:

4. If $\sec\theta + \tan\theta = 2$, then the value of $\sec\theta - \tan\theta$ is

A. 1/2

B. 1

C. -1

D. none of these.

Answer:

5. If $x = m \cos ec\alpha$ and $y = n \cot \alpha$, then the

value of $\dfrac{x^2}{m^2} - \dfrac{y^2}{n^2}$ is

A. -1

B. 0

C. 1

D. 2

Answer:

6. If $\sec^2 \theta + \tan^2 \theta = \dfrac{13}{12}$, then $\sec^4 \theta =$

A. 144/576

B. 169/576

C. 576/625

D. 625/576.

Answer:

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7. If $2x = \sec\theta$ and $\dfrac{2}{x} = \tan\theta$, then $2\left(x^2 - \dfrac{1}{x^2}\right) =$

A. 1/4

B. 1/2

C. 1/8

D. 1/16.

Answer:

8. $\sec^2\theta = 4x\dfrac{y}{(x+y)^2}$ is true if and only if

A. $a < b$

B. $a > b$

C. a = b

D. a ge b.

Answer:

9. Maximum value of $\sin\theta + \cos\theta$ is

A. 0

B. 1

C. $\sqrt{2}$

D. 2

Answer:

10. If $\cos\theta + \sec\theta = 2$, then the value of $\cos^{2017}\theta + \sec^{2018}\theta$ is

A. 4035

B. 2

C. 2017

D. 2018

Answer:

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11. If $\tan\left(\dfrac{\Pi}{2} - \dfrac{\theta}{2}\right) = \sqrt{3}$, the value of $\cos\theta$ is____

A. 0

B. $\dfrac{1}{\sqrt{2}}$

C. 1/2

D. 1

Answer:

12. If $2\sin\left(\dfrac{\pi}{2}\right) = x^2 + \dfrac{1}{x^2} = $, then the value of $\left(x - \dfrac{1}{x}\right)$ is___

A. -1

B. 2

C. 1

D. 0

Answer:

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13. If $A = \sin^2 \theta + \cos^4 \theta$ then for all real

values of θ

A. $1 \leq A \leq 2$

B. $\dfrac{3}{4} \leq A \leq 1$

C. $\dfrac{13}{16} \leq A \leq 1$

D. $\dfrac{3}{4} \le A \le \dfrac{13}{16}$

Answer:

14. If $\cos 0 = x^2 - x + \dfrac{5}{4}$, the value of x will be___

A. 0

B. 1

C. -1

D. none of these.

Answer:

15. In $\triangle ABC, \angle B = 90°$ and AB : BC = 2 : 1.

The value of $\sin A + \cot C$ is____

A. $3 + \sqrt{5}$

B. $\dfrac{2 + \sqrt{5}}{2\sqrt{5}}$

C. $2 + \sqrt{5}$

D. $3sqet5$

Answer:

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16. If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta$, then

$\cos\theta - \sin\theta$ is___

A. $\sqrt{2}\tan\theta$

B. O

C. $-\sqrt{2}\sin\theta$

D. $\sqrt{2}\sin\theta$

Answer:

17. If $\cos^4\theta - \sin^4\theta = \dfrac{2}{3}$, then the value of $\left(1 - 2\sin^2\theta\right)$ is___

A. 4/3

B. 0

C. 2/3

D. 1/3

Answer:

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18. If $\dfrac{\cos\alpha}{\cos\beta} = a$ and $\dfrac{\sin\alpha}{\sin\beta} = b$, then the value of $\sin^2\beta$ interms of a and b is____

A. $\dfrac{a^2 + 1}{a^2 - b^2}$

B. $\dfrac{a^2 - b^2}{a^2 + b^2}$

C. $\dfrac{a^2 - 1}{a^2 - b^2}$

D. $\dfrac{a^2 - 1}{a^2 + b^2}$

Answer:

19. If θ is an acute angle and $\tan\theta + \cot\theta = 2$, then the value of $\tan^{10}\theta + \cot^{10}\theta$ is___

A. 1

B. 2

C. 3

D. 4

Answer:

20. If

$$\frac{2\tan^2 30°}{1 - \tan^2 30°} + \sec^2 45° - \sec^2 0° = x\sec 60°$$

, then the value of x is___

A. 0

B. 1

C. -1

D. 2

Answer:

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21. Which one of the following is true for

$0° < \theta < 90°$?

A. $\cos \le \cos^2 \theta$

B. $\cos \theta > \cos^2 \theta$

C. $\cos \theta < \cos^2 \theta$

D. $\cos \theta \geq \cos^2 \theta$

Answer:

22. If $\cos^2 \alpha - \sin^2 \alpha = \tan^2 \beta$, then the value

of $\left(\cos^2 \beta - \sin^2 \beta\right)$ is____

A. $\cot^2 \alpha$

B. $\cot^2 \beta$

C. $\tan^2 \alpha$

D. $\tan^2 \beta$

Answer:

23. For any values of $\sqrt{\dfrac{\sec \theta - 1}{\sec \theta + 1}}$ = ?

A. $\cot \theta - \cos ec\theta$

B. $\sec \theta - \tan \theta$

C. $\cos ec\theta - \cot \theta$

D. $\tan\theta - \sec\theta$

Answer:

24. If $0° < A < 90°$, then the value of

$\tan^2 A + \cot^2 A - \sec^2 A \cos ec^2 A$ is____

A. -2

B. 0

C. 1

D. 2

Answer:

25. The vlaue of $\dfrac{2\sin^3\theta - \sin\theta}{\cos\theta - 2\cos^3\theta}$ is equal to____

A. $\sin\theta$

B. $\cos\theta$

C. $\tan\theta$

D. $\cot \theta$

Answer:

26. If $r \sin \theta = \dfrac{7}{2}$ and $r \cos \theta = \dfrac{7\sqrt{3}}{2}$ then

value of r is____

A. 4

B. 3

C. 5

D. 7

Answer:

27. If $\theta + \emptyset = \dfrac{\Pi}{2}$ and $\sin\theta = \dfrac{1}{2}$ then the value of $\sin\emptyset$ is____

A. 1

B. $\dfrac{1}{\sqrt{2}}$

C. 1/2

D. $\dfrac{\sqrt{3}}{2}$

Answer:

28. If $a\cos\theta + b\sin\theta = p$ and $a\sin\theta - b\cos\theta = q$, then the relation between a, b, p and q is____

A. $a^2 - b^2 = p^2 - q^2$

B. $a^2 + b^2 = p^2 + q^2$

C. $a + b = p^2 + q^2$

D. a + b = p + q

Answer:

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29. If $\theta = 60°$, then $\frac{1}{2}\sqrt{1 + \sin\theta} + \frac{1}{2}\sqrt{1 - \sin\theta}$ is equal to____

A. $\dfrac{\cot(\theta)}{2}$

B. $\dfrac{\sec(\theta)}{2}$

C. $\dfrac{\sin(\theta)}{2}$

D. $\dfrac{\cos(\theta)}{2}$

Answer:

30. $\sin A + \cos B = 2$ then $\tan\left(\dfrac{A+B}{2}\right)$

equals____

A. $\propto$

B. 1

C. $\dfrac{1}{\sqrt{3}}$

D. $\sqrt{3}$

Answer:

31. If $\cos^4 \theta + \cos^2 \theta = 1$ then the value of $\left(\tan^4 \theta + \tan^2 \theta\right)$ is equal____

A. 0

B. -1

C. 1

D. cannot be determined

Answer:

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