RAVI MATHS TUITION CENTER ,GKM COLONY, CH- 82. PH: 8056206308

Trignometry 2 M

Date : 10-Jul-19

11th Standard

Business Maths

Reg.No. : | | | | | | |

Time : 00:40:00 Hrs

Total Marks : 40

20 x 2 = 40

1) Find the principal value of the following
$\sec^{-1}(-\sqrt{2})$

2) Find the degree measure corresponding to the following radian measure. $\frac{11\pi}{18}$

3) Determine the quadrants in which the following degree lie. 1195°

4) Find the values of each of the following trigonometric ratios. $cosec(1125^o)$

5) Evaluate
$\cos\left[\tan^{-1}\left(\frac{3}{4}\right)\right]$

6) Find the values of the following cot 75°

7) If $\cos x = -\frac{1}{2}$ and $\pi < x < 3\frac{\pi}{2}$, find the value of $4\tan^2 x - 3cosec^2 x$

8) Evaluate $\cot\left(\frac{-15\pi}{4}\right)$

9) In any quadrilateral ABCD, prove that sin (A + B) + sin (C + D) = 0

10) Prove that $\frac{\tan 69^o + \tan 66^o}{1 - \tan 69^o \tan 66^o} = -1$

11) Prove that $\cos 18^o - \sin 18^o = \sqrt{2}.\sin 27^o$

12) Evaluate: sin 50° - sin 70° + sin 10°

13) Find the quadrants in which the terminal sides of the following angles lie.
1325°

14) Show that $\frac{sin2\theta}{1+cos2\theta} = tan\theta$

15) Express the following as sum or difference
$\cos\frac{3A}{2}cos\frac{5A}{2}$

16) Express the following as sum or difference
2cos13Asin15A

17) Evaluate the following $\cos(sin^1\frac{5}{13})$

18) Evaluate the following $\tan(cos^1\frac{8}{17})$

19) Find the value of $tan\left[\frac{\pi}{4} - tan^{-1}\left(\frac{1}{8}\right)\right]$

20) Simplify: $\sin^{-1}\left(\frac{1}{3}\right) + sin^{-}1(\frac{2}{3})$

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Trignometry 1 M

Date : 10-Jul-19

11th Standard

Business Maths

Reg.No. : | | | | | | |

Time : 00:25:00 Hrs

Total Marks : 25

25 x 1 = 25

1) The degree measure of $\frac{\pi}{8}$ is

(a) $20^o60'$ (b) $22^o30'$ (c) $20^o60'$ (d) $20^o30'$

2) The radian measure of $37^o30'$ is

(a) $\frac{5\pi}{24}$ (b) $\frac{3\pi}{24}$ (c) $\frac{7\pi}{24}$ (d) $\frac{9\pi}{24}$

3) If $\tan\theta = \frac{1}{\sqrt{5}}$ and θ lies in the first quadrant, then $\cos\theta$ is

(a) $\frac{1}{\sqrt{6}}$ (b) $\frac{-1}{\sqrt{6}}$ (c) $\frac{\sqrt{5}}{\sqrt{6}}$ (d) $\frac{-\sqrt{5}}{\sqrt{6}}$

4) The value of $\sin 15^o$ is

(a) $\frac{\sqrt{3}+1}{2\sqrt{2}}$ (b) $\frac{\sqrt{3}-1}{2\sqrt{2}}$ (c) $\frac{\sqrt{3}}{\sqrt{2}}$ (d) $\frac{\sqrt{3}}{2\sqrt{2}}$

5) The value of $\sin(-420^o)$ is

(a) $\frac{\sqrt{3}}{2}$ (b) $-\frac{\sqrt{3}}{2}$ (c) $\frac{1}{2}$ (d) $\frac{-1}{2}$

6) The value of $\cos(-480^o)$ is

(a) $\sqrt{3}$ (b) $-\frac{\sqrt{3}}{2}$ (c) $\frac{1}{2}$ (d) $\frac{-1}{2}$

7) The value of $\sin 28^o \cos 17^o + \cos 28^o \sin 17^o$ is

(a) $\frac{1}{\sqrt{2}}$ (b) 1 (c) $\frac{-1}{\sqrt{2}}$ (d) 0

8) The value of $\sin 15^o \cos 15^o$ is

(a) 1 (b) $\frac{1}{2}$ (c) $\frac{\sqrt{3}}{2}$ (d) $\frac{1}{4}$

9) The value of $\sec A \sin(270^o+A)$ is

(a) -1 (b) $\cos^2 A$ (c) $\sec^2 A$ (d) 1

10) If $\sin A + \cos A = 1$, then $\sin 2A$ is equal to

(a) 1 (b) 2 (c) 0 (d) $\frac{1}{2}$

11) The value of $\cos^2 45^o - \sin^2 45^o$ is

(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{1}{2}$ (c) 0 (d) $\frac{1}{\sqrt{2}}$

12) The value of $1-2\sin^2 45^o$ is

(a) 1 (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) 0

13) The value $4\cos^3 40^o - 3\cos 40^o$ is

(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{-1}{2}$ (c) $\frac{1}{2}$ (d) $\frac{1}{\sqrt{2}}$

14) The value of $\frac{2\tan 30^o}{1+tan^2 30}$ is

(a) $\frac{1}{2}$ (b) $\frac{1}{\sqrt{3}}$ (c) $\frac{\sqrt{3}}{2}$ (d) $\sqrt{3}$

15) If $\sin A = \frac{1}{2}$ then $4\cos^3 A - 3\cos A$ is

(a) 1 (b) 0 (c) $\frac{\sqrt{3}}{2}$ (d) $\frac{1}{\sqrt{2}}$

16) The value of $\frac{3\tan 10^o - \tan^3 10}{1-3\tan^2 10}$ is

(a) $\frac{1}{\sqrt{3}}$ (b) $\frac{1}{2}$ (c) $\frac{\sqrt{3}}{2}$ (d) $\frac{1}{\sqrt{2}}$

17) The value of is

(a) $\frac{\pi}{4}$ (b) $\frac{\pi}{2}$ (c) $\frac{\pi}{3}$ (d) $\left(\frac{2}{\sqrt{3}}\right)$

18) $\sec^{-1}\frac{2}{3}+cosec^{-1}\frac{2}{3}=$

(a) $\frac{-\pi}{2}$ (b) $\frac{\pi}{2}$ (c) π (d) $-\pi$

19) If α and β be between 0 and $\frac{\pi}{2}$ and if $\cos(\alpha+\beta)=\frac{12}{13}$ and $\sin(\alpha-\beta)=\frac{3}{5}$ then $\sin 2\alpha$ is

(a) $\frac{16}{15}$ (b) 0 (c) $\frac{56}{65}$ (d) $\frac{64}{65}$

20) If $\tan A=\frac{1}{2}$ and $\tan B=\frac{1}{3}$ then tan(2A+B) is equal to

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

21) $\tan\left(\frac{\pi}{4}-x\right)$ is

(a) $\left(\frac{1+\tan x}{1-\tan x}\right)$ (b) $\left(\frac{1-\tan x}{1+\tan x}\right)$ (c) 1-tan x (d) 1+tan x

22) $\sin\left(\cos^{-1}\frac{3}{5}\right)$ is

(a) $\frac{3}{5}$ (b) $\frac{5}{3}$ (c) $\frac{4}{5}$ (d) $\frac{5}{4}$

23) The value of $\frac{1}{cosec(-45^{o})}$ is

(a) $\frac{-1}{\sqrt{2}}$ (b) $\frac{1}{\sqrt{2}}$ (c) $\sqrt{2}$ (d) $-\sqrt{2}$

24) If p sec 50° = tan 50° then p is

(a) cos 50° (b) sin 50° (c) tan 50° (d) sec 50°

25) $\left(\frac{\cos x}{cosecx}\right)-\sqrt{1-\sin^2 x}\sqrt{1-\cos^2 x}$ is

(a) $\cos^2x-\sin^2x$ (b) $\sin^2x-\cos^2x$ (c) 1 (d) 0

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Trignometry 3 M

Date : 10-Jul-19

11th Standard

Business Maths

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 60

20 x 3 = 60

1) Solve: $\tan^{-1}2x + \tan^{-1}3x = \frac{\pi}{4}$

2) Evaluate $\cos\left(\sin^{-1}\left(\frac{4}{5}\right) + \sin^{-1}\left(\frac{12}{13}\right)\right)$

3) Prove that $\sqrt{3}$ cosec 20°-sec 20°=4

4) If $\tan x = \frac{3}{4} = \pi < x < \frac{3\pi}{2}$, then find the value of $\sin\frac{x}{2}$ and $\cos\frac{x}{2}$

5) Show that $\cos^{-1}\left(\frac{12}{13}\right) + \sin^{-1}\left(\frac{3}{5}\right) = \sin^{-1}\left(\frac{56}{65}\right)$

6) Find the values of the following. $\sin\frac{\pi}{4}\cos\frac{\pi}{12} + \cos\frac{\pi}{4}\sin\frac{\pi}{12}$

7) Find the values of the following. cos 70° cos 10° - sin 70° sin 10°

8) Find the values of the following $\cos^2 15 - \sin^2 15°$

9) Express each of the following as the sum or difference of sine or cosine:
$sin\frac{A}{8}sin\frac{3A}{8}$

10) Express each of the following as the product of sine or cosine

sin6θ-sin2θ

11) Prove that: $(cos\alpha - cos\beta)^2 + (sin\alpha - sin\beta)^2 = 4sin^2\left(\frac{\alpha-\beta}{2}\right)$

12) Prove that: sinA sin(60°+A) sin(60°-A)=$\frac{1}{4}$ sin3A

13) Prove that: sin (A-B) sin C + sin (B - C) sin A + sin (C- A) sin B = 0

14) Prove that 2 tan 80° = tan 85° - tan 5°.

15) If A+B=45° , Prove that (1 + tan A) (1+ tan B) = 2 and hence deduce the value of $\tan 22\frac{1}{2}^\circ$

16) If tan A = m tanB, prove that $\frac{sin(A+B)}{sin(A-B)} = \frac{m+1}{m-1}$

17) If tanA =$\frac{1}{7}$ and tanB =$\frac{1}{3}$, show that cos2A = sin4B

18) Show that sin20°sin 40° sin80°=$\frac{\sqrt{3}}{8}$

19) Prove that (cos α +cosβ)²+ (sinα +sinβ)² =cos2$\frac{\alpha-\beta}{2}$

20) If tan(x + y) = 42 and x = tan–1(2), then find y

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Trignometry 5 M

Date : 10-Jul-19

11th Standard

Business Maths

Reg.No. : | | | | | | |

Time : 02:00:00 Hrs

Total Marks : 80

20 x 5 = 100

1) Solve: $\tan^{-1}(x+1)+\tan^{-1}(x-1)=\tan^{-1}\left(\frac{4}{7}\right)$

2) If $\sin\theta\frac{3}{5}$, $\tan\phi=\frac{1}{2}$ and $\frac{\pi}{2}<\theta<\pi<\varphi<\frac{3\pi}{2}$, then find the value of $8\tan\theta-\sqrt{5}\sec\varphi$

3) Prove that $\frac{\cos 4x+\cos 3x+\cos 2x}{\sin 4x+\sin 3x+\sin 2x}=\cot 3x$

4) Prove that $\tan(\pi+x)\cot(x-\pi)-(\cos(2\pi-x)\cos(2\pi+x))=\sin^2 x$

5) Prove that $\frac{\sin\left(180^o+A\right)\cos\left(90^o-A\right)\tan\left(270^o-A\right)}{\sec\left(540^o-A\right)\cos\left(360^o+A\right)\,cosec\left(270^o+A\right)}=-\sin A\cos^2 A$

6) If $\cos(\alpha+\beta)=\frac{4}{5}$ and $\sin(\alpha-\beta)=\frac{5}{13}$ where $(\alpha+\beta)$ and $(\alpha-\beta)$ are acute, then find $\tan 2\alpha$

7) Prove that $\frac{4tan\,x\,(1-tan^2x)}{1-6tan^2x+tan^4x}=tanx$

8) Prove that (sin 3x + sin x) sin x + (cos 3x - cos x) cos x = 0.

9) Prove that sin(n+1)x sin(n+2) x+cos(n+1)xcos(n+2)x=cosx.

10) if $\cot\alpha=\frac{1}{2}$, $\sec\beta=\frac{-5}{3}$ where $\pi<\alpha<\frac{3\pi}{2}$ and $\frac{\pi}{2}<\beta<\pi$ find the value of $\tan(\alpha+\beta)$. State the quadrant in which $(\alpha+\beta)$ terminates.

11) Prove that $\cos^2 2x-\cos^2 6x=\sin 4x.\sin 8x$

12) Prove that $\cos 4x = 1 - 8\sin^2 x\cos^2 x$.

13) Prove that $\cos 6x = 32\cos^6 x - 48\cos^4 x + 18\cos^2 x - 1$.

14) Prove that $\cos 20°\cos 40°\cos 60°\cos 80^0=\frac{1}{16}$

15) If cosec A + sec A = cosec B + sec B, prove that $\cot\left(\frac{A+B}{2}\right)=\tan A\tan B$

16) If $sin\left(sin^{-1}\left(\frac{1}{5}\right)+cos^{-1}(x)\right)=1$ then find the value of x

17) If tan A - tan B = x and cot B - cot A = y, prove that cot (A - B) = $\frac{1}{x}+\frac{1}{y}$

18) If $\sin A=\frac{3}{5}$, find the values of cos 3A and tan 3A.

19) If $\tan\alpha=\frac{1}{7}$, $\sin\beta=\frac{1}{\sqrt{10}}$, Prove that $\alpha+2\beta=\frac{\pi}{4}$ where $0<\alpha<\frac{\pi}{2}$ and $0<\beta<\frac{\pi}{2.}$

20) Prove that $\cos^2 A+\cos^2(A+120^o)+\cos^2(A-120^o)=\frac{3}{2}$

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