EduSahara™ Assignment

Name : Trigonometry Miscellaneous

Chapter : Trigonometrical Ratios

Grade : ICSE Grade IX

1. Which of the following are true?

   a) The cotangent of an angle is the reciprocal of the tangent of the angle.
   b) $\sin(A + B) = \sin A + \sin B$
   c) $\tan A = \tan \times A$
   d) $\cos(A + B) = \cos A + \cos B$
   e) The cosine value of an angle is the reciprocal of the sine of the angle.
   f) The cosecant of an angle is the reciprocal of the secant of the angle

   (i) {d,e,a} (ii) {c,a} (iii) {a} (iv) {f,a} (v) {b,a}

2. If $\sin 2D = 2\sin D$, then $D =$

   (i) 30° (ii) 45° (iii) 60° (iv) 90° (v) 0°

3. If $\sin(F + G) = \frac{1}{2}\sqrt{3}$ and $\sin(F - G) = \frac{1}{2}$, find $F \& G$

   (i) F=46°,G=16° (ii) F=43°,G=13° (iii) F=47°,G=17° (iv) F=44°,G=14° (v) F=45°,G=15°

4. If $\tan(E + F) = \sqrt{3}$ and $\tan(E - F) = \sqrt{\frac{1}{3}}$, find $E \& F$

   (i) E=47°,F=17° (ii) E=46°,F=16° (iii) E=44°,F=14° (iv) E=45°,F=15° (v) E=43°,F=13°

5. $\sin 60° \cos 45° + \cos 60° \sin 45° =$

   (i) $(\frac{1}{4}\sqrt{6} + \frac{1}{4}\sqrt{2})$ (ii) $(\frac{1}{4}\sqrt{6} + \frac{1}{4}\frac{4}{\sqrt{2}})$ (iii) $(\frac{1}{4}\sqrt{9} + \frac{1}{4}\sqrt{2})$ (iv) $(\frac{1}{4}\sqrt{6} + \frac{1}{2})$ (v) $(\frac{1}{4}\sqrt{4} + \frac{1}{4}\sqrt{2})$

6. In $\triangle GHI$, right angled at H, if $\tan G = \frac{1}{2}$, find $\sin G \cos I + \cos G \sin I$

   (i) 1 (ii) $\frac{1}{2}\sqrt{5}$ (iii) $\frac{2}{5}\sqrt{5}$ (iv) $\frac{1}{5}\sqrt{5}$ (v) $\sqrt{5}$

7. In $\triangle MNO$, right angled at N, if $\tan M = \frac{3}{5}$, find $\cos M \cos O - \sin M \sin O$

   (i) 0 (ii) $\frac{5}{34}\sqrt{34}$ (iii) $\frac{1}{5}\sqrt{34}$ (iv) $\frac{3}{34}\sqrt{34}$ (v) $\frac{1}{3}\sqrt{34}$

8. $\sin(A + B) =$

   (i) $\sin A \cos B - \cos A \sin B$ (ii) $\sin A \cos B + \cos A \sin B$ (iii) $\cos A \cos B - \sin A \sin B$

   (iv) $\cos A \cos B + \sin A \sin B$

9. $\sin(A-B) =$

(i) $\cos A\cos B - \sin A\sin B$ (ii) $\cos A\cos B + \sin A\sin B$ (iii) $\sin A\cos B - \cos A\sin B$

(iv) $\sin A\cos B + \cos A\sin B$

10. $\cos(A+B) =$

(i) $\cos A\cos B - \sin A\sin B$ (ii) $\cos A\cos B + \sin A\sin B$ (iii) $\sin A\cos B + \cos A\sin B$

(iv) $\sin A\cos B - \cos A\sin B$

11. $\cos(A-B) =$

(i) $\cos A\cos B + \sin A\sin B$ (ii) $\cos A\cos B - \sin A\sin B$ (iii) $\sin A\cos B + \cos A\sin B$

(iv) $\sin A\cos B - \cos A\sin B$

12. $\tan(A+B) =$

(i) $\dfrac{\tan A + \tan B}{1 - \tan A\tan B}$ (ii) $\dfrac{\tan A - \tan B}{1 - \tan A\tan B}$ (iii) $\dfrac{\tan A - \tan B}{1 + \tan A\tan B}$ (iv) $\dfrac{\tan A + \tan B}{1 + \tan A\tan B}$

13. $\tan(A-B) =$

(i) $\dfrac{\tan A + \tan B}{1 + \tan A\tan B}$ (ii) $\dfrac{\tan A - \tan B}{1 - \tan A\tan B}$ (iii) $\dfrac{\tan A - \tan B}{1 + \tan A\tan B}$ (iv) $\dfrac{\tan A + \tan B}{1 - \tan A\tan B}$

14. $\sin 96° =$

(i) $\sin 64°\cos 32° + \cos 64°\sin 32°$ (ii) $\sin 64°\cos 32° - \cos 64°\sin 32°$ (iii) $\cos 64°\cos 32° + \sin 64°\sin 32°$

(iv) $\cos 64°\cos 32° - \sin 64°\sin 32°$

15. $\sin 12° =$

(i) $\cos 36°\cos 24° + \sin 36°\sin 24°$ (ii) $\sin 36°\cos 24° + \cos 36°\sin 24°$ (iii) $\cos 36°\cos 24° - \sin 36°\sin 24°$

(iv) $\sin 36°\cos 24° - \cos 36°\sin 24°$

16. $\cos 49° =$

(i) $\cos 28°\cos 21° - \sin 28°\sin 21°$ (ii) $\sin 28°\cos 21° - \cos 28°\sin 21°$ (iii) $\sin 28°\cos 21° + \cos 28°\sin 21°$

(iv) $\cos 28°\cos 21° + \sin 28°\sin 21°$

17. $\cos 30° =$

(i) $\sin 36°\cos 6° + \cos 36°\sin 6°$ (ii) $\sin 36°\cos 6° - \cos 36°\sin 6°$ (iii) $\cos 36°\cos 6° + \sin 36°\sin 6°$

(iv) $\cos 36°\cos 6° - \sin 36°\sin 6°$

18. $\tan 88° =$

(i) $\dfrac{\tan 80° + \tan 8°}{1 + \tan 80°\tan 8°}$ (ii) $\dfrac{\tan 80° - \tan 8°}{1 - \tan 80°\tan 8°}$ (iii) $\dfrac{\tan 80° + \tan 8°}{1 - \tan 80°\tan 8°}$ (iv) $\dfrac{\tan 80° - \tan 8°}{1 + \tan 80°\tan 8°}$

19. $\tan 8° =$

(i) $\dfrac{\tan 16° - \tan 8°}{1 + \tan 16°\tan 8°}$ (ii) $\dfrac{\tan 16° + \tan 8°}{1 + \tan 16°\tan 8°}$ (iii) $\dfrac{\tan 16° - \tan 8°}{1 - \tan 16°\tan 8°}$ (iv) $\dfrac{\tan 16° + \tan 8°}{1 - \tan 16°\tan 8°}$

20. Which of the following are true?

a) $\cos 2A = \cos^2 A - \sin^2 A$

b) $\cos 2A = \cos^2 A + \sin^2 A$

c) $\tan 2A = \dfrac{2\tan A}{1 + \tan^2 A}$

d) $\sin 2A = 2\sin^2 A\cos^2 A$

e) $\sin 2A = 2\sin A\cos A$

f) $\tan 2A = \dfrac{2\tan A}{1 - \tan^2 A}$

(i) {a,e,f} (ii) {c,a,e} (iii) {d,b,f} (iv) {b,a} (v) {c,e}

21. Which of the following are true?

a) $\cos 60° = \cos^2 30° + \sin^2 30°$

b) $\cos 60° = \cos^2 30° - \sin^2 30°$

c) $\tan 60° = \frac{2\tan 30°}{1 - \tan^2 30°}$

d) $\sin 60° = 2\sin 30° \cos 30°$

e) $\tan 60° = \frac{2\tan 30°}{1 + \tan^2 30°}$

f) $\sin 60° = 2\sin^2 30° \cos^2 30°$

(i) {e,b,c} (ii) {f,a,d} (iii) {b,c,d} (iv) {a,b} (v) {e,c}

22. Find the value of $\frac{(1 + \sin\theta)}{(\cos\theta)} + \frac{(\cos\theta)}{(1 + \sin\theta)}$

(i) $2\sec\theta$ (ii) $2\cos\theta$ (iii) $2\operatorname{cosec}\theta$ (iv) $2\sin\theta$

23. Find the length of the side of a 3-sided regular polygon inscribed in a circle of radius 1 m

(i) 1.7820 m (ii) 1.6320 m (iii) 1.7320 m (iv) 1.8320 m

24. Find the length of the chord of the unit circle subtending an angle of 108° at the centre

(i) 1.7180 (ii) 1.6680 (iii) 1.5180 (iv) 1.6180

25. Find the area of the right angled triangle with hypotenuse 5 cm and one of the acute angle being 38°

(i) 5.0646 cm (ii) 8.0646 cm (iii) 7.0646 cm (iv) 6.0646 cm

26. Find the area of an isosceles triangle with base 6 cm and vertical angle 54°

(i) 17.6644 cm (ii) 18.6644 cm (iii) 16.6644 cm (iv) 19.6644 cm

27. If V, W and X are the interior angles of a triangle, then $\sin(\frac{V + W}{2}) =$

(i) $\cos(\frac{X}{2})$ (ii) $\sin X$ (iii) $\cos(\frac{V}{2})$ (iv) $\sin(\frac{V}{2})$ (v) $\sin(\frac{X}{2})$

28. Which of the following are true?

a) $\sin 22° = \cos 68°$
b) $\tan 54° = \cot 36°$
c) $\sin 27° = \cos 63°$
d) $\sin 38° = \cos 38°$
e) $\sec 57° = \operatorname{cosec} 33°$
f) $\sin 31° = \cos 59°$
g) $\cos 39° = \sin 39°$

(i) {d,a} (ii) {d,e,f} (iii) {d,g,c} (iv) {g,b} (v) {a,b,c,e,f}

29. Which of the following are true?

a) $\tan 0°$ is not defined
b) $\operatorname{cosec} 0°$ is not defined
c) $\tan 90°$ is not defined
d) $\sec 90°$ is not defined
e) $\operatorname{cosec} 90°$ is not defined
f) $\cot 0°$ is not defined
g) $\sec 0°$ is not defined
h) $\cot 90°$ is not defined

(i) {g,h,d} (ii) {a,b} (iii) {e,c} (iv) {b,c,d,f} (v) {a,f,b}

30. Which of the following are true?

a) $\cot\theta = \frac{1}{\sec\theta}$

b) $\sec\theta = \frac{1}{\sin\theta}$

c) $\tan\theta = \frac{1}{\cot\theta}$

d) $\sec\theta = \frac{1}{\cos\theta}$

e) $\operatorname{cosec}\theta = \frac{1}{\sin\theta}$

f) $\cos\theta = \frac{1}{\operatorname{cosec}\theta}$

(i) {c,d,e} (ii) {a,c} (iii) {f,a,e} (iv) {b,c,d} (v) {b,d}

31. Which of the following are true?

a) $\sin 45° = 1$
b) $\cos 90° = 1$
c) $\tan 90° = 1$
d) $\cos 0° = 1$
e) $\cos 45° = 1$
f) $\sin 0° = 1$
g) $\tan 0° = 1$
h) $\sin 90° = 1$

(i) {f,h,d} (ii) {a,d} (iii) {b,h} (iv) {c,e,d} (v) {d,h}

32. Which of the following are true?

a) $\cos 45° = 0$
b) $\tan 0° = 0$
c) $\cos 0° = 0$
d) $\sin 45° = 0$
e) $\sin 0° = 0$
f) $\tan 90° = 0$
g) $\sin 90° = 0$
h) $\cos 90° = 0$

(i) {d,f,h} (ii) {g,b,e} (iii) {c,e} (iv) {a,b} (v) {b,e,h}

Assignment Key

1) (iii)	2) (v)	3) (v)	4) (iv)	5) (i)	6) (i)
7) (i)	8) (ii)	9) (iii)	10) (i)	11) (i)	12) (i)
13) (iii)	14) (i)	15) (iv)	16) (i)	17) (iii)	18) (iii)
19) (i)	20) (i)	21) (iii)	22) (i)	23) (iii)	24) (iv)
25) (iv)	26) (i)	27) (i)	28) (v)	29) (iv)	30) (i)
31) (v)	32) (v)				