EduSahara™ Assignment

Name : Trigonometry Miscellaneous

Chapter : Trigonometrical Ratios

Grade : ICSE Grade IX

1. Which of the following are true?

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

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

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

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

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

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

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

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

5. $\sin 30° \cos 45° + \cos 30° \sin 45° =$

(i) $(\frac{1}{4}\sqrt{\frac{1}{2}} + \frac{1}{4}\sqrt{6})$ (ii) $(\frac{1}{4}\sqrt{2} + \frac{1}{4}\sqrt{\frac{4}{6}})$ (iii) $(\frac{1}{4}\sqrt{2} + \frac{1}{4}\sqrt{6})$ (iv) $(\frac{1}{4}\sqrt{5} + \frac{1}{4}\sqrt{6})$ (v) $(\frac{1}{4}\sqrt{2} + \frac{3}{2})$

6. In $\triangle BCD$, right angled at C, if $\tan B = \frac{2}{3}$, find $\sin B \cos D + \cos B \sin D$

(i) $\frac{3}{13}\sqrt{13}$ (ii) 1 (iii) $\frac{1}{3}\sqrt{13}$ (iv) $\frac{1}{2}\sqrt{13}$ (v) $\frac{2}{13}\sqrt{13}$

7. In $\triangle CDE$, right angled at D, if $\tan C = \frac{4}{5}$, find $\cos C \cos E - \sin C \sin E$

(i) $\frac{1}{5}\sqrt{41}$ (ii) 0 (iii) $\frac{4}{41}\sqrt{41}$ (iv) $\frac{1}{4}\sqrt{41}$ (v) $\frac{5}{41}\sqrt{41}$

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

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

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

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

(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. $\sin 120° =$

(i) $\sin 80°\cos 40° - \cos 80°\sin 40°$ (ii) $\cos 80°\cos 40° + \sin 80°\sin 40°$ (iii) $\sin 80°\cos 40° + \cos 80°\sin 40°$

(iv) $\cos 80°\cos 40° - \sin 80°\sin 40°$

15. $\sin 35° =$

(i) $\sin 70°\cos 35° - \cos 70°\sin 35°$ (ii) $\sin 70°\cos 35° + \cos 70°\sin 35°$ (iii) $\cos 70°\cos 35° + \sin 70°\sin 35°$

(iv) $\cos 70°\cos 35° - \sin 70°\sin 35°$

16. $\cos 77° =$

(i) $\cos 42°\cos 35° - \sin 42°\sin 35°$ (ii) $\sin 42°\cos 35° + \cos 42°\sin 35°$ (iii) $\sin 42°\cos 35° - \cos 42°\sin 35°$

(iv) $\cos 42°\cos 35° + \sin 42°\sin 35°$

17. $\cos 35° =$

(i) $\sin 70° \cos 35° + \cos 70° \sin 35°$ (ii) $\sin 70° \cos 35° - \cos 70° \sin 35°$ (iii) $\cos 70° \cos 35° - \sin 70° \sin 35°$

(iv) $\cos 70° \cos 35° + \sin 70° \sin 35°$

18. $\tan 30° =$

(i) $\dfrac{\tan 25° + \tan 5°}{1 - \tan 25° \tan 5°}$ (ii) $\dfrac{\tan 25° - \tan 5°}{1 - \tan 25° \tan 5°}$ (iii) $\dfrac{\tan 25° - \tan 5°}{1 + \tan 25° \tan 5°}$ (iv) $\dfrac{\tan 25° + \tan 5°}{1 + \tan 25° \tan 5°}$

19. $\tan 21° =$

(i) $\dfrac{\tan 35° - \tan 14°}{1 - \tan 35° \tan 14°}$ (ii) $\dfrac{\tan 35° + \tan 14°}{1 - \tan 35° \tan 14°}$ (iii) $\dfrac{\tan 35° - \tan 14°}{1 + \tan 35° \tan 14°}$ (iv) $\dfrac{\tan 35° + \tan 14°}{1 + \tan 35° \tan 14°}$

20. Which of the following are true?

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

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

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

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

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

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

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

21. Which of the following are true?

a) $\sin 32° = 2\sin 16°\cos 16°$

b) $\cos 32° = \cos^2 16° - \sin^2 16°$

c) $\tan 32° = \dfrac{2\tan 16°}{1 + \tan^2 16°}$

d) $\tan 32° = \dfrac{2\tan 16°}{1 - \tan^2 16°}$

e) $\sin 32° = 2\sin^2 16°\cos^2 16°$

f) $\cos 32° = \cos^2 16° + \sin^2 16°$

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

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

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

23. Find the length of the side of a 4-sided regular polygon inscribed in a circle of radius 1 m

(i) 1.5142 m (ii) 1.4642 m (iii) 1.4142 m (iv) 1.3142 m

24. Find the length of the chord of the unit circle subtending an angle of 106° at the centre

(i) 1.6472 (ii) 1.5972 (iii) 1.6972 (iv) 1.4972

25. Find the area of the right angled triangle with hypotenuse 7 cm and one of the acute angle being 70°

(i) 9.8737 cm (ii) 7.8737 cm (iii) 8.8737 cm (iv) 6.8737 cm

26. Find the area of an isosceles triangle with base 6 cm and vertical angle 58°

(i) 17.2367 cm (ii) 18.2367 cm (iii) 15.2367 cm (iv) 16.2367 cm

27. If Q, R and S are the interior angles of a triangle, then $\sin\left(\dfrac{Q + R}{2}\right) =$

(i) $\cos\left(\dfrac{Q}{2}\right)$ (ii) $\cos\left(\dfrac{S}{2}\right)$ (iii) $\sin S$ (iv) $\sin\left(\dfrac{S}{2}\right)$ (v) $\sin\left(\dfrac{Q}{2}\right)$

28. Which of the following are true?

a) $\sin 50° = \cos 40°$
b) $\sin 31° = \cos 59°$
c) $\sin 29° = \cos 61°$
d) $\tan 42° = \cot 48°$
e) $\sec 58° = \operatorname{cosec} 32°$
f) $\cos 43° = \sin 43°$
g) $\sin 24° = \cos 24°$

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

29. Which of the following are true?

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

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

30. Which of the following are true?

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

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

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

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

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

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

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

31. Which of the following are true?

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

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

32. Which of the following are true?

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

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

Assignment Key

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