EduSahara™ Assignment

Name : Trigonometry Miscellaneous

Chapter : Trigonometrical Ratios

Grade : ICSE Grade IX

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1. Which of the following are true?

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

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

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

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

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

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

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

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

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

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

6. In $\triangle KLM$, right angled at L, if $\tan K = \frac{1}{5}$, find $\sin K \cos M + \cos K \sin M$

   (i) $\sqrt{26}$ (ii) $\frac{5}{26}\sqrt{26}$ (iii) $\frac{1}{26}\sqrt{26}$ (iv) $\frac{1}{5}\sqrt{26}$ (v) 1

7. In $\triangle LMN$, right angled at M, if $\tan L = \frac{1}{3}$, find $\cos L \cos N - \sin L \sin N$

   (i) $\sqrt{10}$ (ii) 0 (iii) $\frac{3}{10}\sqrt{10}$ (iv) $\frac{1}{3}\sqrt{10}$ (v) $\frac{1}{10}\sqrt{10}$

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

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

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

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

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

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

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

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

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

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

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

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

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. $\sin 75° =$

(i) $\sin 40° \cos 35° - \cos 40° \sin 35°$ (ii) $\cos 40° \cos 35° - \sin 40° \sin 35°$ (iii) $\cos 40° \cos 35° + \sin 40° \sin 35°$

(iv) $\sin 40° \cos 35° + \cos 40° \sin 35°$

15. $\sin 6° =$

(i) $\sin 24° \cos 18° - \cos 24° \sin 18°$ (ii) $\sin 24° \cos 18° + \cos 24° \sin 18°$ (iii) $\cos 24° \cos 18° - \sin 24° \sin 18°$

(iv) $\cos 24° \cos 18° + \sin 24° \sin 18°$

16. $\cos 42° =$

(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) $\cos 36° \cos 6° + \sin 36° \sin 6°$

17. $\cos 40° =$

(i) $\sin 50° \cos 10° - \cos 50° \sin 10°$ (ii) $\sin 50° \cos 10° + \cos 50° \sin 10°$ (iii) $\cos 50° \cos 10° + \sin 50° \sin 10°$

(iv) $\cos 50° \cos 10° - \sin 50° \sin 10°$

18. $\tan 15° =$

(i) $\dfrac{\tan 10° - \tan 5°}{1 + \tan 10° \tan 5°}$ (ii) $\dfrac{\tan 10° + \tan 5°}{1 + \tan 10° \tan 5°}$ (iii) $\dfrac{\tan 10° - \tan 5°}{1 - \tan 10° \tan 5°}$ (iv) $\dfrac{\tan 10° + \tan 5°}{1 - \tan 10° \tan 5°}$

19. $\tan 18° =$

(i) $\dfrac{\tan 48° - \tan 30°}{1 - \tan 48° \tan 30°}$ (ii) $\dfrac{\tan 48° - \tan 30°}{1 + \tan 48° \tan 30°}$ (iii) $\dfrac{\tan 48° + \tan 30°}{1 + \tan 48° \tan 30°}$ (iv) $\dfrac{\tan 48° + \tan 30°}{1 - \tan 48° \tan 30°}$

20. Which of the following are true?

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

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

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

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

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

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

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

21. Which of the following are true?

a) $\sin 112° = 2\sin 56° \cos 56°$

b) $\sin 112° = 2\sin^2 56° \cos^2 56°$

c) $\tan 112° = \dfrac{2\tan 56°}{1 + \tan^2 56°}$

d) $\cos 112° = \cos^2 56° + \sin^2 56°$

e) $\cos 112° = \cos^2 56° - \sin^2 56°$

f) $\tan 112° = \dfrac{2\tan 56°}{1 - \tan^2 56°}$

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

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

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

23. Find the length of the side of a 15-sided regular polygon inscribed in a circle of radius 1 m

(i) 0.4658 m (ii) 0.3158 m (iii) 0.5158 m (iv) 0.4158 m

24. Find the length of the chord of the unit circle subtending an angle of 101° at the centre

(i) 1.6432 (ii) 1.5932 (iii) 1.5432 (iv) 1.4432

25. Find the area of the right angled triangle with hypotenuse 4 cm and one of the acute angle being 53°

(i) 4.8448 cm (ii) 5.8448 cm (iii) 2.8448 cm (iv) 3.8448 cm

26. Find the area of an isosceles triangle with base 4 cm and vertical angle 70°

(i) 5.7127 cm (ii) 7.7127 cm (iii) 6.7127 cm (iv) 4.7127 cm

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

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

28. Which of the following are true?

a) $\cos 57° = \sin 57°$
b) $\sin 40° = \cos 50°$
c) $\tan 31° = \cot 59°$
d) $\sin 59° = \cos 31°$
e) $\sin 36° = \cos 54°$
f) $\sin 34° = \cos 34°$
g) $\sec 23° = \operatorname{cosec} 67°$

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

29. Which of the following are true?

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

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

30. Which of the following are true?

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

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

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

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

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

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

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

31. Which of the following are true?

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

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

32. Which of the following are true?

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

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

Assignment Key

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

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