EduSahara™ Assignment

Name : Trigonometry Miscellaneous

Chapter : Trigonometry

Grade : SSC Grade X

1. Which of the following are true?

   a) The value of $\tan F$ is always less than 1
   b) The value of $\cot F$ is always less than 1
   c) The value of $\sin F$ is always less than 1
   d) If $\sin F = 0$, then $\cos F = 1$ or $\cos F = -1$
   e) $\cos F$ is the abbrieviation for $\operatorname{cosec} F$

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

2. For angle values from 0° to 90°, which of the following are true?

   a) The cosine value of the angle increases
   b) The sum of the squares of the sine and cosine values remains a constant
   c) The product of the sine and cosine values remains a constant
   d) The sine value of the angle increases
   e) The tangent value of the angle increases
   f) The cotangent value of the angle increases

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

3. Which of the following are true?

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

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

4. Which of the following are true?

   a) $\tan\theta = \cot\theta$ for no value of θ
   b) The value of $\sin\theta$ increases as θ increases from $0°$ to $90°$
   c) $\cos(G + H) = \cos G + \cos H$
   d) $\tan(G + H) = \tan G + \tan H$
   e) $\sin\theta = \cos\theta$ for all θ
   f) $\sin(G + H) = \sin G + \sin H$
   g) The value of $\cos\theta$ increases as θ increases from $0°$ to $90°$

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

5. Which of the following are true?

a) $\sin^2\theta - \cos^2\theta = 1, 0 \le \theta \le 90°$

b) $\text{cosec}^2\theta - \cot^2\theta = 1, 0 \le \theta \le 90°$

c) $\sin^2\theta + \cos^2\theta = 1, 0 \le \theta \le 90°$

d) $\text{cosec}^2\theta + \cot^2\theta = 1, 0 \le \theta \le 90°$

e) $\sec^2\theta - \tan^2\theta = 1, 0 \le \theta \le 90°$

f) $\sec^2\theta + \tan^2\theta = 1, 0 \le \theta \le 90°$

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

6. If $\sin 2A = 2\sin A$, then A =

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

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

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

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

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

9. If $\sin 7x = \cos((x-14))$, then $x =$

(i) 12 (ii) 16 (iii) 13 (iv) 11 (v) 14

10. If $\cos 7x = \sin((x+10))$, then $x =$

(i) 8 (ii) 11 (iii) 10 (iv) 12 (v) 9

11. If $\tan 7x = \cot((x-22))$, then $x =$

(i) 13 (ii) 11 (iii) 15 (iv) 14 (v) 17

12. If $\cot 8x = \tan x$, then $x =$

(i) 12 (ii) 7 (iii) 9 (iv) 10 (v) 11

13. If $\sec 4x = \text{cosec}((x+50))$, then $x =$

(i) 10 (ii) 6 (iii) 7 (iv) 8 (v) 9

14. If $\text{cosec}\, 8x = \sec((x+27))$, then $x =$

(i) 6 (ii) 9 (iii) 5 (iv) 8 (v) 7

15. Which of the following are true?

a) $\frac{\cos\theta}{\operatorname{cosec}\theta + 1} + \frac{\cos\theta}{\operatorname{cosec}\theta - 1} = 2\tan\theta$

b) $\frac{\cos\theta}{1 - \sin\theta} + \frac{\cos\theta}{1 + \sin\theta} = 2$

c) $\frac{1 + \sin\theta}{\cos\theta} + \frac{\cos\theta}{1 + \sin\theta} = 2\sec\theta$

d) $(\sec\theta - \tan\theta)^2 = \frac{1 - \sin\theta}{1 + \sin\theta}$

e) $(\sec\theta - \tan\theta)^2 = \frac{1 + \sin\theta}{1 - \sin\theta}$

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

16. Which of the following are true?

a) $\cos^3\theta + \sin^3\theta = (\sin\theta + \cos\theta)(1 - \sin\theta\cos\theta)$

b) $(\sin\theta + \cos\theta)^2 = 1 + \sin 2\theta$

c) $(\sin\theta - \cos\theta)^2 = 1 + \sin 2\theta$

d) $\frac{\cos\theta}{1 + \sin\theta} = \frac{1 - \sin\theta}{\cos\theta}$

e) $\cos^3\theta - \sin^3\theta = (\sin\theta + \cos\theta)(1 - \sin\theta\cos\theta)$

f) $(\sin\theta + \cos\theta)^2 + (\sin\theta - \cos\theta)^2 = 2$

g) $\frac{\sec\theta}{1 + \operatorname{cosec}\theta} = \frac{1 - \operatorname{cosec}\theta}{\sec\theta}$

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

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

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

18. Which of the following are true?

a) $\sin 22° = \cos 68°$
b) $\tan 53° = \cot 37°$
c) $\cos 29° = \sin 29°$
d) $\sin 46° = \cos 44°$
e) $\sin 48° = \cos 42°$
f) $\sin 21° = \cos 21°$
g) $\sec 25° = \operatorname{cosec} 65°$

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

19. Which of the following are true?

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

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

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

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

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

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

21. Which of the following are true?

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

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

22. Which of the following are true?

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

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

23. Which of the following are true?

a) $\tan(90 - \theta) = -\tan\theta$
b) $\cos(90 - \theta) = \cot\theta$
c) $\sec(90 - \theta) = \operatorname{cosec}\theta$
d) $\operatorname{cosec}(90 - \theta) = \sec\theta$
e) $\cos(90 - \theta) = \cos\theta$
f) $\cot(90 - \theta) = \tan\theta$

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

24. Which of the following are true?

a) $\cot(90 - \theta) = \tan\theta$
b) $\tan(90 - \theta) = \cot\theta$
c) $\sin(90 - \theta) = -\sin\theta$
d) $\cos(90 - \theta) = -\cos\theta$
e) $\cos(90 - \theta) = \sin\theta$
f) $\sin(90 - \theta) = \cos\theta$

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

25. If $p = \cos\theta + \sin\theta$, $q = \cos\theta \sin\theta$ then

(i) $(p^2 - q^2) = 1$ (ii) $p^2 = (2q + 1)$ (iii) $(p^2 + q^2) = 1$ (iv) $p^2 = (-2q + 1)$ (v) $(p^2 + q^2) = 0$

26. If $v = \cos\theta + \sin\theta$, $w = \cos\theta - \sin\theta$ then

(i) $(v^2 - w^2) = 1$ (ii) $(v^2 + w^2) = 1$ (iii) $(v^2 + w^2) = 2$ (iv) $(v^2 + w^2) = 0$ (v) $(v^2 - w^2) = 2$

27. If $e = x\cos\theta + y\sin\theta$ and $f = x\sin\theta - y\cos\theta$, then

(i) $(e^2 - f^2) = (x^2 - y^2)$ (ii) $(e^2 + f^2) = (x^2 + y^2)$ (iii) $ef = xy$ (iv) $(x^2 + e^2) = (y^2 + f^2)$

Assignment Key

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