EduSahara™ Assignment

Name : Trigonometry Miscellaneous

Chapter : Trigonometry

Grade : SSC Grade X

1. Which of the following are true?

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

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

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

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

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

3. Which of the following are true?

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

   (i) {a,c} (ii) {b,c} (iii) {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) $\sin(F + G) = \sin F + \sin G$
   c) $\tan(F + G) = \tan F + \tan G$
   d) $\sin\theta = \cos\theta$ for all θ
   e) $\cos(F + G) = \cos F + \cos G$
   f) The value of $\cos\theta$ increases as θ increases from $0°$ to $90°$
   g) The value of $\sin\theta$ increases as θ increases from $0°$ to $90°$

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

5. Which of the following are true?

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

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

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

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

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

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

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

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

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

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

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

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

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

9. If $\sin 4x = \cos((x+65))$, then $x =$

(i) 7 (ii) 2 (iii) 4 (iv) 5 (v) 6

10. If $\cos 4x = \sin((x+20))$, then $x =$

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

11. If $\tan 6x = \cot((x+27))$, then $x =$

(i) 9 (ii) 7 (iii) 8 (iv) 11 (v) 10

12. If $\cot 4x = \tan((x+20))$, then $x =$

(i) 13 (ii) 16 (iii) 15 (iv) 14 (v) 12

13. If $\sec 5x = \operatorname{cosec}((x+60))$, then $x =$

(i) 6 (ii) 4 (iii) 2 (iv) 8 (v) 5

14. If $\operatorname{cosec} 4x = \sec((x+20))$, then $x =$

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

15. Which of the following are true?

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

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

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

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

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

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

16. Which of the following are true?

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

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

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

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

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

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

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

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

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

(i) $\cos(\frac{U}{2})$ (ii) $\sin U$ (iii) $\cos(\frac{S}{2})$ (iv) $\sin(\frac{U}{2})$ (v) $\sin(\frac{S}{2})$

18. Which of the following are true?

a) $\sec 51° = \operatorname{cosec} 39°$
b) $\cos 50° = \sin 50°$
c) $\sin 53° = \cos 37°$
d) $\sin 21° = \cos 69°$
e) $\sin 49° = \cos 41°$
f) $\sin 23° = \cos 23°$
g) $\tan 46° = \cot 44°$

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

19. Which of the following are true?

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

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

20. Which of the following are true?

a) $\tan\theta = \dfrac{1}{\cot\theta}$

b) $\cot\theta = \dfrac{1}{\sec\theta}$

c) $\sec\theta = \dfrac{1}{\sin\theta}$

d) $\cos\theta = \dfrac{1}{\operatorname{cosec}\theta}$

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

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

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

21. Which of the following are true?

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

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

22. Which of the following are true?

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

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

23. Which of the following are true?

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

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

24. Which of the following are true?

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

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

25. If $x = \cos\theta + \sin\theta$, $y = \cos\theta\sin\theta$ then

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

26. If $q = \cos\theta + \sin\theta$, $r = \cos\theta - \sin\theta$ then

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

27. If $b = y\cos\theta + z\sin\theta$ and $c = y\sin\theta - z\cos\theta$, then

(i) $(b^2 - c^2) = (y^2 - z^2)$ (ii) $(y^2 + b^2) = (z^2 + c^2)$ (iii) $(b^2 + c^2) = (y^2 + z^2)$ (iv) $bc = yz$

Assignment Key

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