

EduSahara™ Learning Center Assignment**Grade : Class X, SSC****Chapter : Trigonometry****Name : Trigonometry Miscellaneous**

1. Which of the following are true?

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

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

- a) The cotangent value of the angle increases
 - b) The product of the sine and cosine values remains a constant
 - c) The tangent value of the angle increases
 - d) The cosine value of the angle increases
 - e) The sine value of the angle increases
 - f) The sum of the squares of the sine and cosine values remains a constant
- (i) {b,c,e} (ii) {c,e,f} (iii) {d,a,f} (iv) {a,c} (v) {b,e}

3. Which of the following are true?

- a) $\tan G = \tan \times G$
 - b) $\sin(G + H) = \sin G + \sin H$
 - c) $\cos(G + H) = \cos G + \cos H$
 - d) The cosine value of an angle is the reciprocal of the sine of the angle.
 - e) The cotangent of an angle is the reciprocal of the tangent of the angle.
 - f) The cosecant of an angle is the reciprocal of the secant of the angle
- (i) {f,e} (ii) {e} (iii) {b,e} (iv) {c,d,e} (v) {a,e}

4. Which of the following are true?

- a) The value of $\sin \theta$ increases as θ increases from 0° to 90°
- b) $\sin \theta = \cos \theta$ for all θ
- c) $\cos(E + F) = \cos E + \cos F$
- d) $\sin(E + F) = \sin E + \sin F$
- e) The value of $\cos \theta$ increases as θ increases from 0° to 90°
- f) $\tan(E + F) = \tan E + \tan F$

g) $\tan \theta = \cot \theta$ for no value of θ

- (i) {f,a} (ii) {b,a} (iii) {d,e,a} (iv) {c,a} (v) {a}
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5. Which of the following are true?

a) $\sin^2 \theta - \cos^2 \theta = 1$, $0 \leq \theta \leq 90^\circ$

b) $\sin^2 \theta + \cos^2 \theta = 1$, $0 \leq \theta \leq 90^\circ$

c) $\sec^2 \theta + \tan^2 \theta = 1$, $0 \leq \theta \leq 90^\circ$

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

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

f) $\sec^2 \theta - \tan^2 \theta = 1$, $0 \leq \theta \leq 90^\circ$

- (i) {b,d,f} (ii) {e,a,f} (iii) {a,b} (iv) {c,d} (v) {c,b,d}
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6. If $\sin 2C = 2 \sin C$, then $C =$

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

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

(i) $F = 44^\circ$, $G = 14^\circ$

(ii) $F = 45^\circ$, $G = 15^\circ$

(iii) $F = 43^\circ$, $G = 13^\circ$

(iv) $F = 46^\circ$, $G = 16^\circ$

(v) $F = 47^\circ$, $G = 17^\circ$

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

(i) $A = 47^\circ$, $B = 17^\circ$

(ii) $A = 43^\circ$, $B = 13^\circ$

(iii) $A = 44^\circ$, $B = 14^\circ$

(iv) $A = 45^\circ$, $B = 15^\circ$

(v) $A = 46^\circ$, $B = 16^\circ$

9. If $\sin 8x = \cos((x+9))$, then $x =$

- (i) 7 (ii) 12 (iii) 9 (iv) 10 (v) 8
-

10. If $\cos 4x = \sin((x+45))$, then $x =$

- (i) 10 (ii) 12 (iii) 9 (iv) 7 (v) 8

11. If $\tan 6x = \cot((x-8))$, then $x =$

- (i) 16 (ii) 15 (iii) 11 (iv) 14 (v) 13

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

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

13. If $\sec 6x = \operatorname{cosec}((x+41))$, then $x =$

- (i) 8 (ii) 6 (iii) 4 (iv) 10 (v) 7

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

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

15. Which of the following are true?

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

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

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

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

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

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

16. Which of the following are true?

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

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

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

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

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

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

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

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

18. Which of the following are true?

a) $\sin 32^\circ = \cos 58^\circ$

b) $\sec 56^\circ = \operatorname{cosec} 34^\circ$

c) $\sin 53^\circ = \cos 37^\circ$

d) $\tan 48^\circ = \cot 42^\circ$

e) $\sin 49^\circ = \cos 49^\circ$

f) $\cos 27^\circ = \sin 27^\circ$

g) $\sin 52^\circ = \cos 38^\circ$

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

19. Which of the following are true?

a) $\cot 90^\circ$ is not defined

b) $\cot 0^\circ$ is not defined

c) $\tan 90^\circ$ is not defined

d) $\sec 0^\circ$ is not defined

e) $\sec 90^\circ$ is not defined

f) $\tan 0^\circ$ is not defined

g) $\operatorname{cosec} 90^\circ$ is not defined

h) $\operatorname{cosec} 0^\circ$ is not defined

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

20. Which of the following are true?

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

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

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

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

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

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

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

21. Which of the following are true?

a) $\sin 0^\circ = 1$

b) $\cos 0^\circ = 1$

c) $\cos 45^\circ = 1$

d) $\sin 45^\circ = 1$

e) $\sin 90^\circ = 1$

f) $\tan 90^\circ = 1$

g) $\cos 90^\circ = 1$

h) $\tan 0^\circ = 1$

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

22. Which of the following are true?

a) $\sin 45^\circ = 0$

b) $\cos 45^\circ = 0$

c) $\sin 90^\circ = 0$

d) $\cos 90^\circ = 0$

e) $\cos 0^\circ = 0$
 $\sin$

f) $0^\circ = 0$

g) $\tan 90^\circ = 0$

h) $\tan 0^\circ = 0$

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

23. Which of the following are true?

a) $\sec(90 - \theta) = \operatorname{cosec} \theta$

b) $\cos(90 - \theta) = \cos \theta$

c) $\cos(90 - \theta) = \cot \theta$

d) $\operatorname{cosec}(90 - \theta) = \sec \theta$

e) $\cot(90 - \theta) = \tan \theta$

f) $\tan(90 - \theta) = -\tan \theta$

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

24. Which of the following are true?

a) $\sin(90 - \theta) = \cos \theta$

b) $\cos(90 - \theta) = -\cos \theta$

c) $\sin(90 - \theta) = -\sin \theta$

d) $\cos(90 - \theta) = \sin \theta$

e) $\cot(90 - \theta) = \tan \theta$

f) $\tan(90 - \theta) = \cot \theta$

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

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

(i) $w^2 = (-2x + 1)$

(ii) $(w^2 + x^2) = 1$

(iii) $w^2 = (2x + 1)$

(iv) $(w^2 - x^2) = 1$

(v) $(w^2 + x^2) = 0$

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

(i) $(x^2 + y^2) = 2$

$$(ii) \quad (x^2 - y^2) = 2$$

$$(iii) \quad (x^2 + y^2) = 0$$

$$(iv) \quad (x^2 + y^2) = 1$$

$$(v) \quad (x^2 - y^2) = 1$$

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

$$(i) \quad (y^2 + g^2) = (z^2 + h^2)$$

$$(ii) \quad (g^2 - h^2) = (y^2 - z^2)$$

$$(iii) \quad gh = yz$$

$$(iv) \quad (g^2 + h^2) = (y^2 + z^2)$$

Assignment Key

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