



1. Which of the following are true?

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

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

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

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

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

3. Which of the following are true?

- a) $\cos(H + I) = \cos H + \cos I$
- 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) The cosecant of an angle is the reciprocal of the secant of the angle
- e) $\tan H = \tan \times H$
- f) $\sin(H + I) = \sin H + \sin I$

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

4. Which of the following are true?

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

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

5. If $\sin 2C = 2 \sin C$, then $C =$

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

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

- (i) $A=46^\circ, B=16^\circ$ (ii) $A=45^\circ, B=15^\circ$ (iii) $A=47^\circ, B=17^\circ$ (iv) $A=44^\circ, B=14^\circ$ (v) $A=43^\circ, B=13^\circ$

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

- (i) $A=43^\circ, B=13^\circ$ (ii) $A=47^\circ, B=17^\circ$ (iii) $A=44^\circ, B=14^\circ$ (iv) $A=46^\circ, B=16^\circ$ (v) $A=45^\circ, B=15^\circ$

8. In $\triangle HIJ$, right angled at I , if $\tan H = \frac{1}{4}$, find $\sin H \cos J + \cos H \sin J$

- (i) 1 (ii) $\frac{1}{17}\sqrt{17}$ (iii) $\sqrt{17}$ (iv) $\frac{1}{4}\sqrt{17}$ (v) $\frac{4}{17}\sqrt{17}$

9. In $\triangle MNO$, right angled at N , if $\tan M = \frac{1}{6}$, find $\cos M \cos O - \sin M \sin O$

- (i) $\frac{1}{37}\sqrt{37}$ (ii) $\frac{1}{6}\sqrt{37}$ (iii) 0 (iv) $\frac{6}{37}\sqrt{37}$ (v) $\sqrt{37}$

10. If $\cot \theta = \frac{1}{6}$, find $\frac{(1 + \sin \theta)(1 - \sin \theta)}{(1 - \cos \theta)(1 + \cos \theta)}$

- (i) $\frac{1}{34}$ (ii) $(\frac{-1}{36})$ (iii) $\frac{1}{38}$ (iv) $\frac{1}{36}$ (v) $\frac{1}{12}$

11. If $\tan \theta = \frac{2}{3}$, find $\frac{(1 + \cos \theta)(1 - \cos \theta)}{(1 + \sin \theta)(1 - \sin \theta)}$

- (i) $\frac{2}{3}$ (ii) $\frac{2}{9}$ (iii) $\frac{4}{9}$ (iv) $\frac{4}{11}$ (v) $\frac{4}{7}$

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

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

13. Find the value of $3\sec^2 \theta - 3\tan^2 \theta$

- (i) 0 (ii) 6 (iii) 1 (iv) 3

14. If $\tan \theta + \cot \theta = 5$, find $\tan^2 \theta + \cot^2 \theta$

- (i) 25 (ii) 24 (iii) 22 (iv) 21 (v) 23

15. If $\tan \theta - \cot \theta = 8$, find $\tan^2 \theta + \cot^2 \theta$

- (i) 64 (ii) 65 (iii) 66 (iv) 67 (v) 68

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

- (i) 12 (ii) 15 (iii) 13 (iv) 11 (v) 14

17. If $\cos 6x = \sin((x-1))$, then $x =$

- (i) 10 (ii) 12 (iii) 13 (iv) 16 (v) 14

18. If $\tan 7x = \cot((x+26))$, then $x =$

- (i) 8 (ii) 9 (iii) 10 (iv) 5 (v) 7

19. If $\cot 7x = \tan((x-14))$, then $x =$

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

20. If $\sec 6x = \operatorname{cosec}((x+48))$, then $x =$

- (i) 3 (ii) 5 (iii) 7 (iv) 6 (v) 9

21. If $\operatorname{cosec} 6x = \sec((x+55))$, then $x =$

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

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

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

23. Which of the following are true?

- a) $\sin 53^\circ = \cos 37^\circ$
- b) $\sec 44^\circ = \operatorname{cosec} 46^\circ$
- c) $\tan 21^\circ = \cot 69^\circ$
- d) $\cos 24^\circ = \sin 24^\circ$
- e) $\sin 49^\circ = \cos 41^\circ$
- f) $\sin 54^\circ = \cos 36^\circ$
- g) $\sin 27^\circ = \cos 27^\circ$

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

24. Which of the following are true?

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

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

25. Which of the following are true?

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

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

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

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

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

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

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

26. Which of the following are true?

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

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

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

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

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

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

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

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

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

27. Which of the following are true?

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

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

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

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

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

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

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

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

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

28. Which of the following are true?

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

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

29. Which of the following are true?

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

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

30. Which of the following are true?

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

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

31. Which of the following are true?

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

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

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

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

33. If $t = \cos\theta + \sin\theta$, $u = \cos\theta - \sin\theta$ then

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

34.

a) $\frac{p^2}{q^2} = \tan^2 \theta$

b) $(p+q)^2 = g^2$

c) $(p^2 + q^2) = g^2$

d) $(p^2 - q^2) = g^2$

e) $2pq = g^2 \sin 2\theta$

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

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

(i) $gh = yz$ (ii) $(y^2 + g^2) = (z^2 + h^2)$ (iii) $(g^2 + h^2) = (y^2 + z^2)$ (iv) $(g^2 - h^2) = (y^2 - z^2)$

Assignment Key

1) (iii)	2) (v)	3) (ii)	4) (v)	5) (i)	6) (ii)
7) (v)	8) (i)	9) (iii)	10) (iv)	11) (iii)	12) (i)
13) (iv)	14) (v)	15) (iii)	16) (iii)	17) (iii)	18) (i)
19) (ii)	20) (iv)	21) (ii)	22) (iv)	23) (iv)	24) (i)
25) (iv)	26) (ii)	27) (iv)	28) (v)	29) (i)	30) (v)
31) (v)	32) (v)	33) (i)	34) (iii)	35) (iii)	