



1.  $\frac{1 - \tan^2 \theta}{1 + \tan^2 \theta} =$

- (i)  $\cot 2\theta$  (ii)  $\cos 2\theta$  (iii)  $\tan 2\theta$  (iv)  $\sin 2\theta$

2.  $\frac{1 - \tan^2 30^\circ}{1 + \tan^2 30^\circ} =$

- (i)  $\tan 60^\circ$  (ii)  $\cot 60^\circ$  (iii)  $\cos 60^\circ$  (iv)  $\sin 60^\circ$

3.  $\frac{\sin^2 60^\circ + \sin^2 30^\circ}{\cos^2 30^\circ + \cos^2 60^\circ} =$

- (i) undefined (ii) 1 (iii) 0 (iv) -1 (v) 2

4.  $\frac{1 + \tan^2 \theta}{1 + \cot^2 \theta} =$

- (i)  $\operatorname{cosec}^2 \theta$  (ii) 1 (iii)  $\cot^2 \theta$  (iv)  $\tan^2 \theta$  (v)  $\sec^2 \theta$

5. If  $\cot \theta = \frac{7}{8}$ , find  $\frac{(1 + \sin \theta)(1 - \sin \theta)}{(1 - \cos \theta)(1 + \cos \theta)}$

- (i)  $\frac{47}{64}$  (ii)  $\frac{51}{64}$  (iii)  $\frac{49}{66}$  (iv)  $\frac{49}{64}$  (v)  $\frac{49}{62}$

6. If  $\tan \theta = \frac{4}{5}$ , find  $\frac{(1 + \cos \theta)(1 - \cos \theta)}{(1 + \sin \theta)(1 - \sin \theta)}$

- (i)  $\frac{14}{25}$  (ii)  $\frac{18}{25}$  (iii)  $\frac{16}{27}$  (iv)  $\frac{16}{25}$  (v)  $\frac{16}{23}$

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

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

8. Find the value of  $9\sec^2\theta - 9\tan^2\theta$

- (i) 6 (ii) 1 (iii) 11 (iv) 9 (v) 0

9. Find the value of  $(1 + \tan\theta + \sec\theta)(1 + \cot\theta - \operatorname{cosec}\theta)$

- (i) 0 (ii) 2 (iii) 3 (iv) 4 (v) 1

10. Find the value of  $(\operatorname{cosec}\theta - \cot\theta)^2$

(i)  $\frac{1 + \sin\theta}{1 - \sin\theta}$  (ii)  $\frac{1 - \sin\theta}{1 + \sin\theta}$  (iii)  $\frac{1 - \cos\theta}{1 + \cos\theta}$  (iv)  $\frac{1 + \cos\theta}{1 - \cos\theta}$

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

- (i) 60 (ii) 65 (iii) 63 (iv) 62 (v) 61

12. If  $\tan\theta - \cot\theta = 4$ , find  $\tan^2\theta + \cot^2\theta$

- (i) 16 (ii) 17 (iii) 19 (iv) 20 (v) 18

13. Which of the following are true?

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

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

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

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

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

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

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

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

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

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

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

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

16. If  $s = \cos \theta + \sin \theta$ ,  $t = \cos \theta \sin \theta$  then

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

17. 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)  $(q^2-r^2) = 1$  (iv)  $(q^2+r^2) = 0$  (v)  $(q^2+r^2) = 1$

18. If  $c = t \cos \theta + u \sin \theta$  and  $d = t \sin \theta - u \cos \theta$ , then

(i)  $(c^2+d^2) = (t^2+u^2)$  (ii)  $(c^2-d^2) = (t^2-u^2)$  (iii)  $cd = tu$  (iv)  $(t^2+c^2) = (u^2+d^2)$

## Assignment Key

1) (ii)	2) (iii)	3) (ii)	4) (iv)	5) (iv)	6) (iv)
7) (ii)	8) (iv)	9) (ii)	10) (iii)	11) (iv)	12) (v)
13) (iii)	14) (v)	15) (ii)	16) (iv)	17) (ii)	18) (i)