EduSahara™ Assignment

Name : Trigonometric Identities

Chapter : Trigonometrical Identities

Grade : ICSE Grade X

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1. Which of the following are true?

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

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

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

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

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

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

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

3. Which of the following are true?

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

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

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

d) $\dfrac{\cos\theta}{\text{cosec}\theta + 1} + \dfrac{\cos\theta}{\text{cosec}\theta - 1} = 2\tan\theta$

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

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

4. Which of the following are true?

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

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

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

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

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

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

5. If $y = \cos\theta + \sin\theta$, $z = \cos\theta\sin\theta$ then

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

6. If $r = \cos\theta + \sin\theta$, $s = \cos\theta - \sin\theta$ then

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

7.

a) $\dfrac{y^2}{z^2} = \tan^2\theta$

b) $(y^2 - z^2) = c^2$

c) $2yz = c^2 \sin 2\theta$

d) $(y^2 + z^2) = c^2$

e) $(y+z)^2 = c^2$

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

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

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

Assignment Key

1) (iv)	2) (iv)	3) (i)	4) (iv)	5) (i)	6) (iii)
7) (iv)	8) (ii)				

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