EduSahara™ Assignment

Name : Trigonometric Identities

Chapter : Trigonometrical Identities

Grade : ICSE Grade X

1. Which of the following are true?

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

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

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

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

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

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

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

3. Which of the following are true?

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

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

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

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

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

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

4. Which of the following are true?

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

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

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

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

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

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

5. If $p=\cos\theta+\sin\theta$, $q=\cos\theta\sin\theta$ then

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

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

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

7.

a) $\frac{v^2}{w^2} = \tan^2\theta$

b) $(v+w)^2 = h^2$

c) $(v^2+w^2) = h^2$

d) $2vw = h^2\sin 2\theta$

e) $(v^2-w^2) = h^2$

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

8. If $b=q\cos\theta+r\sin\theta$ and $c=q\sin\theta-r\cos\theta$, then

(i) $bc=qr$ (ii) $(b^2+c^2)=(q^2+r^2)$ (iii) $(b^2-c^2)=(q^2-r^2)$ (iv) $(q^2+b^2)=(r^2+c^2)$

Assignment Key

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