

Trigonometry Worksheet-1

Question 1.

Match the Following

$\sin 30^\circ$	1
$\sin 0^\circ$	$1/\sqrt{2}$
$\tan 30^\circ$	$1/2$
$\operatorname{Cosec} 30^\circ$	$1/\sqrt{3}$
$\tan 60^\circ$	2
$\cos 30^\circ$	0
$\cot 90^\circ$	$\sqrt{3}/2$

Question 2.

True and False

- a) $\cos A = 4/3$ for some angle A.
- b) $\tan A = \sin A / \cos A$
- c) $\sec A = 1 / \cos A$, for an acute angle
- d) $\sin 60^\circ = 2 \sin 30^\circ$
- e) $\sin A + \cos A = 1$
- f) $1 + \cot^2 A = \operatorname{cosec}^2 A$

g) $\sin A \times \cot A = \cos A$

h) $\operatorname{cosec} 50^\circ = \sec 40^\circ$

Question 3

Fill in the blanks:

- a) $5 \cos 0^\circ + \sin 90^\circ = \dots\dots\dots$
- b) $\tan 0^\circ = \dots\dots\dots$
- c) $\tan 90^\circ$ is $\dots\dots\dots$
- d) If $\sin A = 1$, then $A = \dots\dots\dots$
- e) $2 \sin^2 60^\circ = \dots\dots\dots$
- f) $2 \cos^2 45^\circ = \dots\dots\dots$

g) $\sin^2 A + \cos^2 A = \dots\dots\dots$

h) $(1 + \tan^2 A) (1 + \sin A) (1 - \sin A) = \dots\dots\dots$

Question 3

Prove the following identity

$$(\sin A - \operatorname{cosec} A)^2 + (\cos A - \sec A)^2 = \tan^2 A + \cot^2 A - 1$$

Answer

1) Self explanatory

Angles(A)	SinA	Cos A	TanA	Cosec A	Sec A	Cot A
0°	0	1	0	Not defined	1	Not defined
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$	2	$\frac{2}{\sqrt{3}}$	$\sqrt{3}$
45°	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{2}}$	1	$\sqrt{2}$	$\sqrt{2}$	1
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{2}{\sqrt{3}}$	2	$\frac{1}{\sqrt{3}}$
90°	1	0	Not defined	1	Not defined	0

2)

- a) false
- b) true
- c) true

- d) False
- e) false
- f) true
- g) true
- h) true

physicscatalyst.com