Assignment : Linear trigonometric equation   Date_____

Find the exact value of each expression.

1) $\sin^{-1} \dfrac{\sqrt{2}}{2}$

2) $\tan^{-1} 1$

3) $\sin^{-1} \dfrac{1}{2}$

4) $\sin^{-1} -\dfrac{\sqrt{3}}{2}$

Solve each equation for $0 \le \theta < 360$.

5) $\dfrac{\sqrt{2}}{2} = \sin \theta$

6) $\cos \theta = \dfrac{\sqrt{2}}{2}$

7) $\sin \theta = \dfrac{2\sqrt{3}}{3}$

8) $-1 = \cos \theta$

9) $\cos \theta = -\dfrac{\sqrt{2}}{2}$

10) $\tan \theta = -\sqrt{3}$

11) $-\dfrac{1}{2} = \cos \theta$

12) $\sin \theta = 0$

13) $\tan \theta = \sqrt{3}$

14) $0 = \tan \theta$

15) $\dfrac{\sqrt{3}}{2} = \cos \theta$
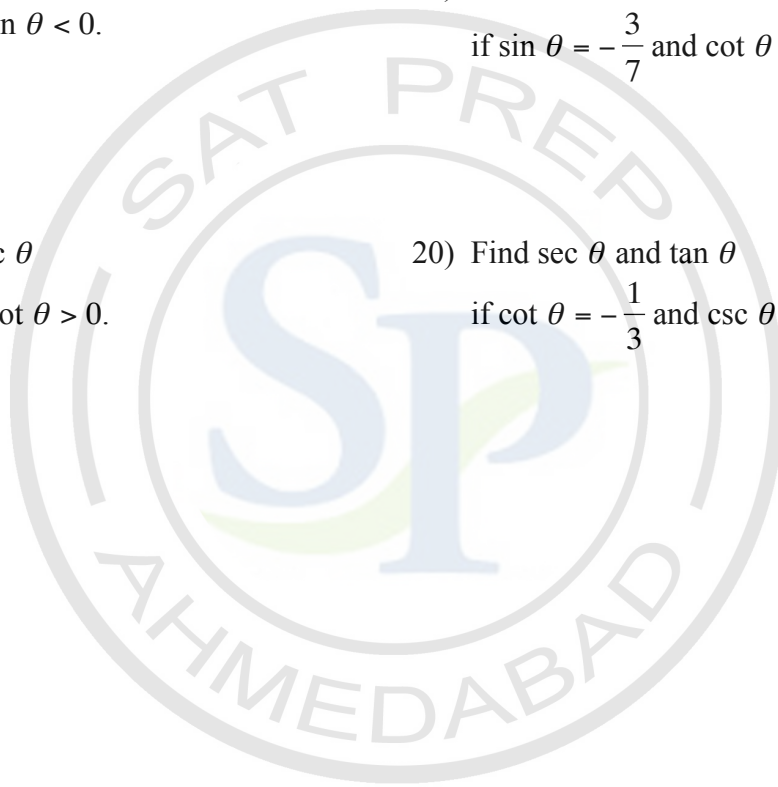
16) $-\dfrac{2\sqrt{3}}{3} = \cos \theta$

Use identities to find the value of each expression.

17) Find $\sin \theta$ and $\tan \theta$
    if $\csc \theta = 2$ and $\tan \theta < 0$.

18) Find $\csc \theta$ and $\cos \theta$
    if $\sin \theta = -\dfrac{3}{7}$ and $\cot \theta > 0$.

19) Find $\tan \theta$ and $\sec \theta$
    if $\cos \theta = \dfrac{1}{2}$ and $\cot \theta > 0$.

20) Find $\sec \theta$ and $\tan \theta$
    if $\cot \theta = -\dfrac{1}{3}$ and $\csc \theta > 0$.

Answers to Assignment : Linear trigonometric equation

1) $\dfrac{\pi}{4}$

2) $\dfrac{\pi}{4}$

3) $\dfrac{\pi}{6}$

4) $-\dfrac{\pi}{3}$

5) $\{45, 135\}$

6) $\{45, 315\}$

7) No solution.

8) $\{180\}$

9) $\{135, 225\}$

10) $\{120, 300\}$

11) $\{120, 240\}$

12) $\{0, 180\}$

13) $\{60, 240\}$

14) $\{0, 180\}$

15) $\{30, 330\}$

16) No solution.

17) $\dfrac{1}{2}$ and $-\dfrac{\sqrt{3}}{3}$

18) $-\dfrac{7}{3}$ and $-\dfrac{2\sqrt{10}}{7}$

19) $\sqrt{3}$ and 2

20) $-\sqrt{10}$ and -3