แบบฝึกหัดเรื่อง ตรีโกณมิติ

ชื่อ-นามสกุล .....

เลขประจำตัว No. 1

1. ขนาดของมุมที่มีหน่วยเป็นเรเดียนต่อไปนี้ มีขนาดกี่องศา

1.1)	$\frac{\pi}{2}$	=	90°
1.2)	$\frac{5\pi}{4}$	=	225°
1.3)	$\frac{\pi}{6}$	=	30°
1.4)	$\frac{5\pi}{3}$	=	300°
1.5)	$-\frac{19\pi}{2}$	=	-1710°
1.6)	$\frac{29\pi}{4}$	=	1305°
1.7)	$\frac{37\pi}{6}$	=	1110°
1.8)	$\frac{43\pi}{3}$	=	2580°
1.9)	3	=	171.887°
1.10)	1.5	=	85.944°

2. ขนาดของมุมที่มีหน่วยเป็นองศาต่อไปนี้ มีขนาดกี่เรเดียน

2.1)	180°	=	π
2.2)	210°	=	$\frac{7\pi}{6}$
2.3)	-315°	=	$-\frac{7\pi}{4}$
2.4)	-60°	=	$-\frac{\pi}{3}$
2.5)	1080°	=	6π
2.6)	-1125°	=	$-\frac{25\pi}{4}$
2.7)	1380°	=	$\frac{23\pi}{3}$
2.8)	1590°	=	$\frac{53\pi}{6}$
2.9)	$\frac{270}{\pi}^\circ$	=	1.5
2.10)	$-\frac{720}{\pi}^\circ$	=	-4

3. กำหนด $Condition1 =$ $\tan(\theta) < 0$ และ $Condition2 =$ $\cos(\theta) = \frac{2}{3}$

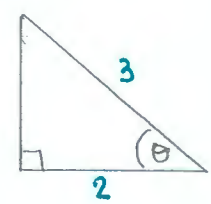
3.1) จงวิเคราะห์ว่า θ อยู่ในจตุภาคใด

ตอบ จตุภาคที่ 4

3.2) จงหา $Quest =$ $\sin\theta$

$\sin(\theta) = -\frac{\sqrt{5}}{3}$

$\sqrt{3^2 - 2^2} = \sqrt{5}$



ตอบ $-\frac{\sqrt{5}}{3}$

4. กำหนด $Condition1 =$ $\csc(\theta) > 0$ และ $Condition2 =$ $\tan(\theta) = -4$

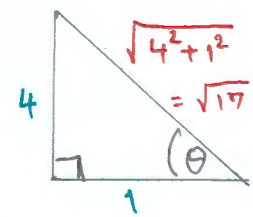
4.1) จงวิเคราะห์ว่า θ อยู่ในจตุภาคใด

ตอบ จตุภาคที่ 2

4.2) จงหา $Quest =$ $\csc(\theta)$

$\csc(\theta) = \frac{\sqrt{17}}{4}$

$\sqrt{4^2 + 1^2} = \sqrt{17}$

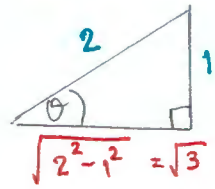


ตอบ $\frac{\sqrt{17}}{4}$

5. กำหนด $A =$ 0 , $B =$ $\frac{\pi}{2}$

ถ้า *Condition* = $\sin(\theta) = \frac{1}{2}$ และ $A \le \theta \le B$ จงหา *Quest* = $\sec(\theta) - \cot(\theta)$

$0 \le \theta \le \frac{\pi}{2}$



$\sec(\theta) - \cot(\theta) = \frac{2}{\sqrt{3}} - \sqrt{3}$

$= \frac{2\sqrt{3}}{3} - \frac{3\sqrt{3}}{3}$

$= -\frac{\sqrt{3}}{3}$

ตอบ $-\frac{\sqrt{3}}{3}$

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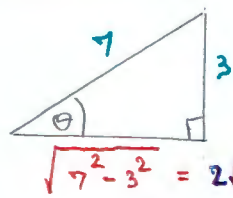
6. กำหนด $A =$ $\frac{3\pi}{2}$, $B =$ 2π

ถ้า *Condition* = $\csc(\theta) = -\frac{7}{3}$ และ $A \le \theta \le B$ จงหา *Quest* = $\tan(\theta) - \sec(\theta)$

$\frac{3\pi}{2} \le \theta \le 2\pi$



$\tan(\theta) - \sec(\theta) = -\frac{3}{2\sqrt{10}} - \frac{7}{2\sqrt{10}}$

$= -\frac{10}{2\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}}$

$= -\frac{\sqrt{10}}{2}$

ตอบ $-\frac{\sqrt{10}}{2}$

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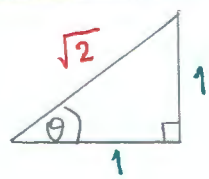
7. กำหนด $A =$ $\frac{\pi}{2}$, $B =$ π

ถ้า *Condition* = $\tan(\theta) = -1$ และ $A \le \theta \le B$ จงหา *Quest* = $\cos(\theta) + \csc(\theta)$

$\frac{\pi}{2} \le \theta \le \pi$



$\cos(\theta) + \csc(\theta) = -\frac{1}{\sqrt{2}} + \sqrt{2}$

$= -\frac{\sqrt{2}}{2} + \frac{2\sqrt{2}}{2}$

$= \frac{\sqrt{2}}{2}$

ตอบ $\frac{\sqrt{2}}{2}$

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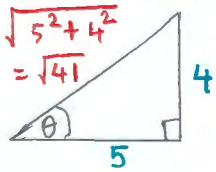
8. กำหนด $A =$ π , $B =$ $\frac{3\pi}{2}$

ถ้า *Condition* = $\cot(\theta) = \frac{5}{4}$ และ $A \le \theta \le B$ จงหา *Quest* = $\cos(\theta) - \csc(\theta)$

$\pi \le \theta \le \frac{3\pi}{2}$



$\cos(\theta) - \csc(\theta) = -\frac{5}{\sqrt{41}} - \left(-\frac{\sqrt{41}}{4}\right)$

$= -\frac{5\sqrt{41}}{41} + \frac{\sqrt{41}}{4}$

$= -\frac{20\sqrt{41}}{164} + \frac{41\sqrt{41}}{164} = \frac{21\sqrt{41}}{164}$

ตอบ $\frac{21\sqrt{41}}{164}$

TrigonometryExercise3 for No.1

$$No1 = \begin{bmatrix} .1 = \frac{\pi}{2} & .6 = \frac{29\pi}{4} \\ .2 = \frac{5\pi}{4} & .7 = \frac{37\pi}{6} \\ .3 = \frac{\pi}{6} & .8 = \frac{43\pi}{3} \\ .4 = \frac{5\pi}{3} & .9 = 3 \\ .5 = -\frac{19\pi}{2} & .10 = 1.5 \end{bmatrix}, No2 = \begin{bmatrix} .1 = 180^{o} & .6 = (-1125)^{o} \\ .2 = 210^{o} & .7 = 1380^{o} \\ .3 = (-315)^{o} & .8 = 1590^{o} \\ .4 = (-60)^{o} & .9 = \left(\frac{270}{\pi}\right)^{o} \\ .5 = 1080^{o} & .10 = \left(-\frac{720}{\pi}\right)^{o} \end{bmatrix}$$

$$No3 = \left[Condition1 = [\mathrm{Tan}(\theta) < 0], Condition2 = \left[\mathrm{Cos}(\theta) = \frac{2}{3}\right], Quest = \mathrm{Sin}(\theta) \right], \left[\frac{\sqrt{:)}}{:(}\right]$$

$$No4 = [Condition1 = [0 < \mathrm{Csc}(\theta)], Condition2 = [\mathrm{Tan}(\theta) = -4], Quest = \mathrm{Csc}(\theta)], \left[\frac{\sqrt{:)}}{:(}\right]$$

$$No5 = \left[A = 0, B = \frac{\pi}{2}, Condition = \left[\mathrm{Sin}(\theta) = \frac{1}{2}\right], Quest = [\mathrm{Sec}(\theta) - \mathrm{Cot}(\theta)] \right], \left[\frac{\sqrt{:)}}{:(}\right]$$

$$No6 = \left[A = \frac{3\pi}{2}, B = 2\pi, Condition = \left[\mathrm{Csc}(\theta) = \frac{-7}{3}\right], Quest = [\mathrm{Tan}(\theta) - \mathrm{Sec}(\theta)] \right], \left[\frac{\sqrt{:)}}{:(}\right]$$

$$No7 = \left[A = \frac{\pi}{2}, B = \pi, Condition = [\mathrm{Tan}(\theta) = -1], Quest = [\mathrm{Cos}(\theta) + \mathrm{Csc}(\theta)] \right], \left[\frac{\sqrt{:)}}{:(}\right]$$

$$No8 = \left[A = \pi, B = \frac{3\pi}{2}, Condition = \left[\mathrm{Cot}(\theta) = \frac{5}{4}\right], Quest = [\mathrm{Cos}(\theta) - \mathrm{Csc}(\theta)] \right], \left[\frac{\sqrt{:)}}{:(}\right]$$

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TrigonometryExercise3 Answers for No.1

$$Ans1 = \begin{bmatrix} .1 = \left(\frac{\pi}{2} = 90^{o}\right) & .6 = \left(\frac{29\,\pi}{4} = 1305^{o}\right) \\ .2 = \left(\frac{5\,\pi}{4} = 225^{o}\right) & .7 = \left(\frac{37\,\pi}{6} = 1110^{o}\right) \\ .3 = \left(\frac{\pi}{6} = 30^{o}\right) & .8 = \left(\frac{43\,\pi}{3} = 2580^{o}\right) \\ .4 = \left(\frac{5\,\pi}{3} = 300^{o}\right) & .9 = (3 = 171.887^{o}) \\ .5 = \left(-\frac{19\,\pi}{2} = (-1710)^{o}\right) & .10 = (1.5 = 85.944^{o}) \end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = (180^{o} = \pi) & .6 = \left((-1125)^{o} = -\frac{25\,\pi}{4}\right) \\ .2 = \left(210^{o} = \frac{7\,\pi}{6}\right) & .7 = \left(1380^{o} = \frac{23\,\pi}{3}\right) \\ .3 = \left((-315)^{o} = -\frac{7\,\pi}{4}\right) & .8 = \left(1590^{o} = \frac{53\,\pi}{6}\right) \\ .4 = \left((-60)^{o} = -\frac{\pi}{3}\right) & .9 = \left(\left(\frac{270}{\pi}\right)^{o} = 1.500\right) \\ .5 = (1080^{o} = 6\,\pi) & .10 = \left(\left(-\frac{720}{\pi}\right)^{o} = -4.000\right) \end{bmatrix}$$

$$Ans3 = \left[.1 = [Quadrant = Q4], .2 = \left(\mathrm{Sin}(\theta) = -\frac{\sqrt{5}}{3}\right)\right], \quad , \begin{bmatrix} \sqrt{:)} \\ :(\end{bmatrix}$$

$$Ans4 = \left[.1 = [Quadrant = Q2], .2 = \left[\mathrm{Csc}(\theta) = \frac{\sqrt{17}}{4}\right]\right], \quad , \begin{bmatrix} \sqrt{:)} \\ :(\end{bmatrix}$$

$$Ans5 = \left[\mathrm{Sec}(\theta) - \mathrm{Cot}(\theta) = -\frac{\sqrt{3}}{3}\right], \quad , \begin{bmatrix} \sqrt{:)} \\ :(\end{bmatrix}$$

$$Ans6 = \left[\mathrm{Tan}(\theta) - \mathrm{Sec}(\theta) = -\frac{\sqrt{10}}{2}\right], \quad , \begin{bmatrix} \sqrt{:)} \\ :(\end{bmatrix}$$

$$Ans7 = \left[\mathrm{Cos}(\theta) + \mathrm{Csc}(\theta) = \frac{\sqrt{2}}{2}\right], \quad , \begin{bmatrix} \sqrt{:)} \\ :(\end{bmatrix}$$

$$Ans8 = \left[\mathrm{Cos}(\theta) - \mathrm{Csc}(\theta) = \frac{21\sqrt{41}}{164}\right], \quad , \begin{bmatrix} \sqrt{:)} \\ :(\end{bmatrix}$$

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