to the old observers, not armed with delicate instruments, a fixed position would be noted for several days.

Venus has now passed to the east of the sun, and is therefore evening star. The only interest attached to the planet now is that it is almost a full disc. Being so close to the sun it will be difficult to find or to see at all in a small telescope; it will be interesting to note just when the limit for naked eye observation is reached. THOMAS LINDSAY.

Toronto.

TRIGONOMETRY, 1897.

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1. Which is the greater angle, the complement of a radian or the supplement of $166\frac{2}{3}$ grades? Express the difference, if any, in circular measure.

Circular measure of the complement of a radian $=\frac{\pi}{2}-1$.

The supplement of $166\frac{2}{3}$ grades $=33\frac{1}{3}$ grades $=\frac{1}{3}$ a right angle.

$\therefore$ circular measure of $\frac{1}{3}$ a right angle $=\frac{\pi}{6}$

The difference $=\left(\frac{\pi}{2}-1\right)-\frac{\pi}{6}-\frac{\pi}{3}-1$, a positive quantity.

$\therefore$ the first angle is the greater.

2. Tan A $=\frac{39}{80}$, and tan B $=\frac{8}{15}$; find sin A, sin B, and sin (A + B), A and B being acute angles.

(Book work). Sin A $=\dfrac{\tan A}{\sqrt{1+\tan^2 A}}=\dfrac{\frac{39}{80}}{\sqrt{1+(\frac{39}{80})^2}}=\dfrac{39}{89}$

$\therefore \cos A=\sqrt{1-(\frac{39}{89})^2}=\frac{80}{89}$

Similarly $\sin B=\frac{8}{17}$, $\cos B=\frac{15}{17}$

$\therefore \sin \overline{A+B}=\sin A\cos B+\cos A\sin B=\frac{39}{89}\times\frac{15}{17}+\frac{80}{89}\times\frac{8}{17}=\frac{1225}{1513}$

3. Prove the following identities :—

(*a*) $\dfrac{2\sin A-\sin 2A}{2\sin A+\sin 2A}=\tan^2\dfrac{A}{2}$

(*b*) $\operatorname{cosec} 2A+\cot 2A=\cot A$.

(*a*) $\dfrac{2\sin A-\sin 2A}{2\sin A+\sin 2A}=\dfrac{1-\cos A}{1+\cos A}=\dfrac{2\sin^2\frac{A}{2}}{2\cos^2\frac{A}{2}}=\tan^2\frac{A}{2}$

(*b*) $\operatorname{cosec} 2A+\cot 2A=\dfrac{1}{\sin 2A}+\dfrac{\cos 2A}{\sin 2A}=\dfrac{1+\cos 2A}{\sin 2A}=$
$\dfrac{2\cos^2 A}{2\sin A\cos A}=\cot A$

4. (*a*) Express the value of tan (A + B + C) in terms of A, tan B, and tan C.