

EXERCISE XIII.

1. $w \tan \theta$; $w \sec \theta$. 2. $\frac{w \sin \theta}{\sin (45^\circ - \theta)}$; $\frac{w \sin 45^\circ}{\sin (45^\circ - \theta)}$.
 3. (a) 100.38 lbs.; 8.75 lbs. (b) 99.62 lbs.; 8.72 lbs.
 4. 75.59 lbs.; 56.69 lbs. 5. $10 \tan \theta$.

EXERCISE XIV.

5. $\frac{\sqrt{3}-1}{2\sqrt{2}}$, $\frac{\sqrt{3}+1}{2\sqrt{2}}$. 6. $\frac{1}{6}(2\sqrt{2}+\sqrt{3})$, $\frac{1}{6}(2\sqrt{6}-1)$.
 9. 174.1 ft. 11. $\frac{\sqrt{3}-1}{\sqrt{3}+1}$, $\frac{\sqrt{3}+1}{\sqrt{3}-1}$.
 12. $\frac{3 \tan \theta - \tan^3 \theta}{1 - 3 \tan^2 \theta}$.
 13. $\frac{\tan A + \tan B + \tan C - \tan A \tan B \tan C}{1 - \tan A \tan B - \tan B \tan C - \tan C \tan A}$.

EXERCISE XV.

1. 0.0738; 0.0740.
 3. (i) 60° . (ii) $\frac{1}{2} r^2 \tan \theta (1 + \cos \theta)$.

EXERCISE XVI.

1. $\frac{1}{4} (\cos \theta - \cos 3 \theta)$.
 7. (i) $\frac{1}{2} (\sin 5 \theta - \sin \theta)$; (ii) $\frac{1}{2} (\sin 7 \theta - \sin \theta)$;
 (iii) $\frac{1}{2} (\cos 8 \theta + \cos 4 \theta)$; (iv) $\frac{1}{2} (\cos 4 \theta - \cos 6 \theta)$.
 8. (i) $2 \sin \frac{5}{2} \theta \cdot \cos \frac{3}{2} \theta$; (ii) $2 \cos 4 \theta \cdot \sin 2 \theta$;
 (iii) $2 \cos \frac{5}{2} \theta \cdot \cos \frac{3}{2} \theta$; (iv) $2 \sin 4 \theta \cdot \sin \theta$.