Trigonometry – Answer Sheet

Q1 (a) $h \approx 9.65$ m (b) $d \approx 108$ m
(c) $d \approx 113$ m (d) $d \approx 45.2$ m

Q2 (a) $208°$ (b) $N55°W$
(c) Resultant ≈ 6.5 km on a true bearing $115°$

Q3 (a) $d \approx 12.8$ cm (b) $h \approx 4.12$ m
(c) Kite height ≈ 66.6 m above sea level

Q4 (a) $b \approx 8.05$ cm (b) $f \approx 11.4$ cm (by cosine rule)
(c) $\angle P \approx 102.6°$ (d) $\angle Y \approx 44.2°$
(e) Area ≈ 49.9 cm^2 (f) Area ≈ 100 m^2

Q5 (a) $\cos 210° = -\dfrac{\sqrt{3}}{2}$ (b) $\sin 135° = \dfrac{\sqrt{2}}{2}$
(c) Angle of inclination $\approx 50°$

Q6 (a) $\sin 30° = \dfrac{1}{2}$, $\cos 45° = \dfrac{\sqrt{2}}{2}$, $\tan 60° = \sqrt{3}$
(b) Verified since $\cos 30° = \sin 60°$
(c) $\theta = 60°, 120°$

Q7 (a) $\theta = 30°, 150°$
(b) $\phi \approx 56.8°, 123.2°, 236.8°, 303.2°$
(c) $\alpha = -150°, -30°, 30°, 150°$

Q8 (a) $M \approx 33.2°$ or $146.8°$
(b) Corresponding $n \approx 22.4$ cm or 2.32 cm

Q9 Challenge
Height $h \approx 53$ m; original distance $d \approx 76$ m; distance from Q to base ≈ 36 m