

Properties of Geometrical Figures – Answer Sheet

Q1 142°

Q2 $x = 15^\circ$

Q3 $y = 112^\circ$, $z = 87^\circ$

Q4 (a) 64° (b) 116°

Q5 $k = 20^\circ$

Q6 60°

Q7 86°

Q8 Base angles = 67°

Q9 75°

Q10 Base angles = 153°

Q11 30°

Q12 $n = 24$

Q13 $y = 180^\circ - x$ (straight-line reasoning)

Q14 Parallel-line proof shows interior sum 180°

Q1 Worked Challenge – Interior three $\times$ exterior

Let exterior angle = E ; interior = $3E$. Because $E + 3E = 180^\circ$,

$$4E = 180^\circ \Rightarrow E = 45^\circ$$

$$n = \frac{360^\circ}{E} = 8$$

Hence it is a regular octagon with interior angle $180 - 45 = \boxed{135^\circ}$ and exterior 45° .