

## Worksheet: Relations and Functions (Class 12)

IB · Class 12 · Mathematics · 3 questions · 13 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 13

**Q1.** Show that the relation  $R$  in the set  $\mathbb{Z}$  of integers defined by  $R = \{(a,b) : 2 \text{ divides } (ab)\}$  is an equivalence relation. [3 marks]

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**Q2.** Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  be defined by  $f(x) = 2x + 3$ . Show that  $f$  is bijective and find  $f^{-1}$ . [4 marks]

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**Q3.** Let  $f: A \rightarrow B$  and  $g: B \rightarrow C$  be two functions. Prove that if both  $f$  and  $g$  are onto, then  $g \circ f: A \rightarrow C$  is also onto. Is the converse true? Justify. [6 marks]

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