

## MATH 147 Review: Surjectivity and Injectivity

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1. Let  $X = \{a, b, c\}$  and let  $Y = \{7, 11, 13, 17, 25, 32\}$ . Let  $f$  be an injection from  $X$  to  $Y$ . If  $f(a) = 7$  and  $f(b) = 17$ , then what is the sum of all the elements of  $Y$  that can possibly be the value of  $f(c)$ ?
2. Let  $X = \{-2, -1, 0, 1, 2\}$ . Let  $Y$  be a set, and let  $f$  be a surjection from  $X$  to  $Y$  where

$$f(x) = x + 4.$$

What is the sum of all the elements of  $Y$ ?