2 Functions

Activity: Functions test (Student version)

**1** In the space below list **ALL** relations (from A to G) that are **functions**.

A close up of text on a white background

Description automatically generatedA picture containing sky

Description automatically generatedA picture containing text

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Description automatically generated

A B C D

E

F

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 1 | 1 |
| 2 | 8 |
| 3 | 27 |
| 4 | 64 |

G

**2** Given evaluate:

**a)** f(5) = **b)** g(–1) =

**3** Given , find g(f(*x*)) then expand and simplify.

**4** Given , find:

**a)**

**b)**

**5** **a)** Express the radius *r* of a circle as a function of the circumference *C*.

**b)** Express the area *A* of the circle as a function of *C*.

**6** Let f. Find .

**7** Find the inverse of the following function.

**8** A balloon is inflated in such a way that its volume increases at a rate of 20 cm3 s−1.

**a)** Given that the volume of the balloon was 100 cm3 when the process of inflation began,  
 what will the volume be after *t* seconds of inflation? *Use function notation*.

**b)** Assuming that the balloon is a sphere while it is being inflated, express the radius *r*   
 of the balloon as a function of *t*.

|  |  |
| --- | --- |
| Volume of a sphere |  |

**9** An open-topped box with a square base is to be constructed from sheet metal in such a way that the completed box is made of 2 m2 of sheet metal. Express the volume of the box as a function of the base width.