

Mathematics 20P

UNIT 2- Functions

ASSIGNMENT 1 due: Tuesday September 23 P1

(Show all working)

1) What are the domain and range of the following:

a) $\{(3, 6), (-1, -2), (x, 2x)\}$

b) $\{(x \in \mathbb{R}, y \in \mathbb{R})\}$

2) Consider the following co-ordinate pairs $\{(5, 4), (-7, 3), (4, 4)\}$

a) Do these point represent a function?

b) Justify your answer

3) Why is x called the dependent and y the independent variable?

4) Write $y = 7x - 5$ in function notation

5) Evaluate $f(-2)$ where $f(x) = 4x - 5$

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6) Consider the function $f(x) = 2x^2 + 2$. Find:

a) $f(3)$

b) $f(d)$

c) $f(\sqrt{8})$

d) $f(r - 3)$

7) If $f(x) = 2x + 1$ and $g(x) = x^2 + 3$ evaluate:

a) $f(3) - g(2)$

b) $f(x^2 - 2) - g(x + 3)$

c) Find $(f \circ g)(x)$

8) If $f(x) = \frac{2x}{x-2}$ and $g(x) = \frac{x}{x-3}$

a) State the domain of the two functions

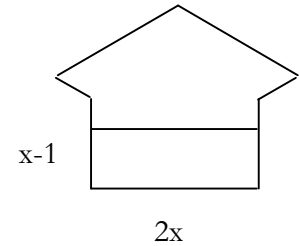
b) Evaluate $3(f \circ g)(2)$

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- c) Write the equation in the simplest form for $(f + g)$. State any restrictions on x
- d) Write an expression in simplest form for $\left(\frac{f}{g}\right)(x)$ state any restrictions on x .

9) The figure shown has an area $A(x) = 2x^2 + 8x - 3\text{cm}^2$

- a) Write an expression for the area of the bottom of the shape



- b) Find an expression in simplest form for the area of the top portion.

- c) If the area of the top piece is 9cm^2 what is x ?

10) For each pair of functions, write a formula for $(g \circ f)(x)$

a) $f(x) = 2 - x, g(x) = |x + 2|$

b) $f(x) = 2x + 1, g(x) = x^4$

11) Find $(f \circ g)(x)$, $(g \circ f)(x)$ and $(f \circ f)$ for $f(x) = \frac{1}{3-x}, g(x) = x^2$