

Date: _____ Block: _____ Name: _____

MATH HONORS 2: UNIT 1 QUIZ 2

Score: _____ / 30 marks → _____ %

Functions**Time Allowed: 30 Minutes**
Calculators NOT Permitted

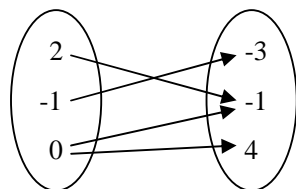
1. State whether each relation is or is not a function, explaining your answer: [4 marks]

(a) $\{(2,3),(-1,0),(1,0),(0,3)\}$

(b) $r(x) = \begin{cases} x+4, & x < -2 \\ 3, & -2 \leq x \leq 1 \\ -x+5, & x \geq 1 \end{cases}$

2. State the domain and range of each relation: [3 marks]

(a)



(b) $f(x) = \frac{5}{x-2}$

3. Given the functions $f(x) = x^2 - x$ and $g(x) = 4 - 3x$, evaluate and simplify: [8 marks]

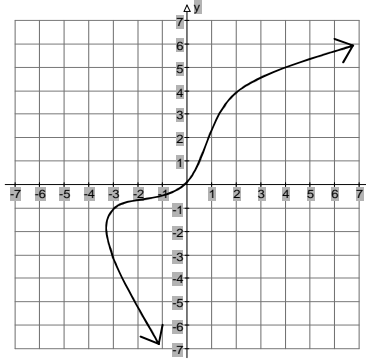
(a) $f(-3)$

(b) $f(2a+1)$

(c) $g \circ g(-5)$

(d) $(f + fg)(x)$

4. Establish whether the inverse of the relation in the graph below is a function, explaining your answer. [2 marks]



5. Find the inverse of the function $f(x) = \frac{-6x-1}{4}$ [2 marks]

6. Given the functions $f(x) = ax + 3$ and $g(x) = 4x + b$, [3 marks]

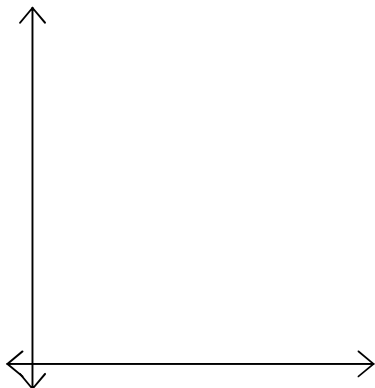
(a) Find $f \circ g$

(b) **Hence**, find a and b such that $f(x)$ and $g(x)$ are inverse functions.

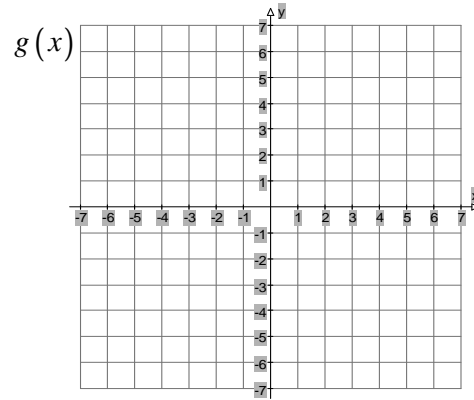
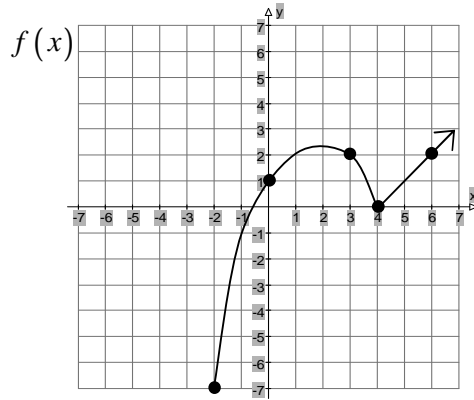
7. The parking lot at a shopping mall charges 20 pesos for each hour (or fraction of an hour), with a maximum stay in the parking lot of 6 hours. Let $C(t)$ represent the parking cost function, where t represents the number of hours parked. [4 marks]

(a) Draw a clear graph of $C(t)$, $0 < t \leq 6$

(b) Give the function $C(t)$



8. Given the graph of $f(x)$, sketch the graph of $g(x) = f(-x) + 1$ [2 marks]



9. On the graph below, the solid line represents the function $f(x) = |x|$ while the dotted line represents the function $g(x) = a|x - b|$. Find a and b [2 marks]

