

Precalculus - Functions, Domain and Range - Test

Common Core F-IF.A.1, F-IF.A.2, F-IF.B.5 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 20-point test covers function notation, domain and range, graphs, piecewise functions and a projectile model (F-IF.A.1, F-IF.A.2, F-IF.B.5). You have 45 minutes. Show your work.

About this test

- Grade: Precalculus
- Chapter: Functions, Domain and Range
- Standards: F-IF.A.1, F-IF.A.2, F-IF.B.5
- Time: 45 minutes
- Total: 20 points

Question 1 - Evaluate [2 pts]

Let $f(x) = x^2 - 3x + 2$. Find $f(-1)$ and $f(4)$.

Question 2 - Function or not [2 pts]

x	-1	0	1	2
y	3	3	5	5

Table of values.

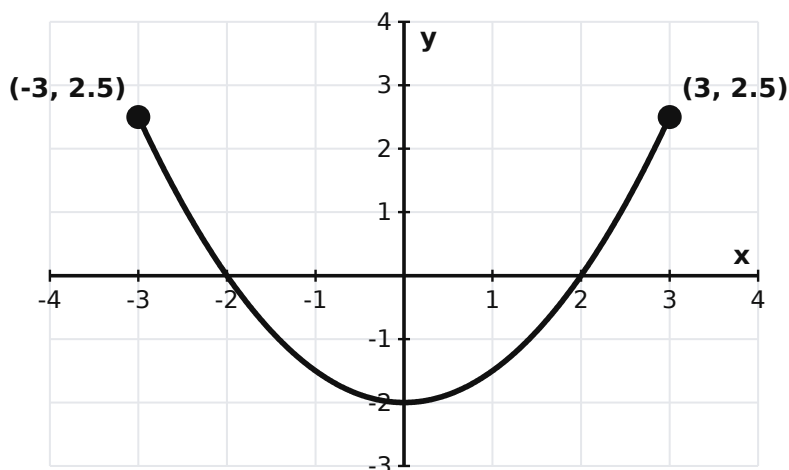
Is y a function of x ? Explain.

Question 3 - Domain with root and fraction [2 pts]

Find the domain of $f(x) = \frac{\sqrt{x+2}}{x-5}$ in interval notation.

Question 4 - Domain of a rational function [2 pts]

Find the domain of $g(x) = \frac{1}{x^2-9}$ in interval notation.

Question 5 - Read a graph [3 pts]

Graph of f on a closed interval.

Use the graph. (a) State the domain and range.

(b) Find $f(0)$.

(c) Find all x with $f(x) = 0$.

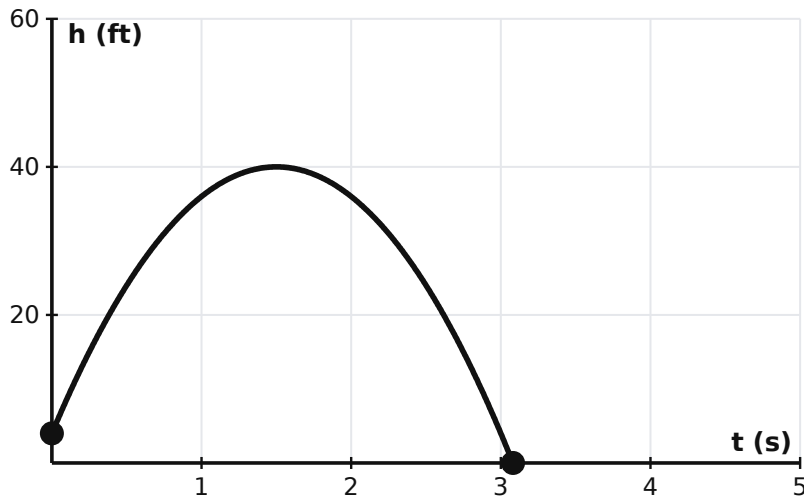
Question 6 - Piecewise function [2 pts]

Let $f(x) = 2x + 1$ for $x \leq 0$ and $f(x) = x^2 - 4$ for $x > 0$. Find $f(-3)$, $f(0)$ and $f(3)$.

Question 7 - Difference quotient [2 pts]

Simplify $\frac{f(x+h)-f(x)}{h}$ for $f(x) = x^2 - x$, where $h \neq 0$.

Question 8 - Projectile model [3 pts]



Ball thrown by Ethan.

Ethan tosses a ball. Its height in feet after t seconds is $h(t) = -16t^2 + 48t + 4$.

- (a) Find the starting height.
- (b) Find the maximum height.
- (c) State the domain that makes sense for t (the ball lands at about 3.08 s).

Question 9 - Rental cost model [2 pts]

A truck rental costs $R(d) = 30 + 0.40d$ dollars for d miles. Find $R(250)$, and find the miles driven when the cost is \$98.