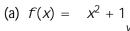
INSTRUCTIONS: Simplify and box all your answers. Write neatly and justify all answers

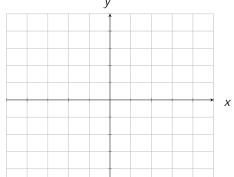
1. Refer to the given graph of f(x) to answer the following: (9 pts)



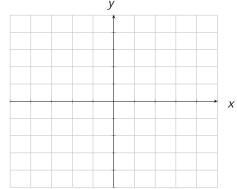
- (a) Find the domain of f(x). Express your answer in interval notation
- (b) Find the range of f(x). Express your answer in interval notation
- (c) Find (f + f)(2)
- (d) Find $(f \ f)(3)$
- (e) Find jf(4)j
- (f) Solve f(x) = 3
- (g) Find

5. Sketch the graph of the following (graph each function on a **separate** set of axes). Label values on your axes: (19 pts)

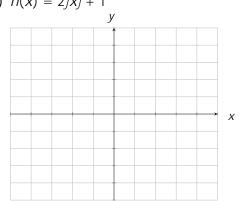




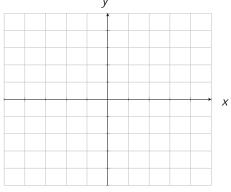
(b)
$$g(x) = (x - 1)^3$$



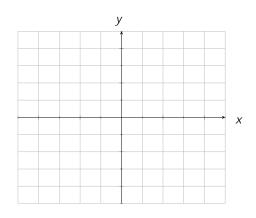
(c)
$$h(x) = 2jxj + 1$$



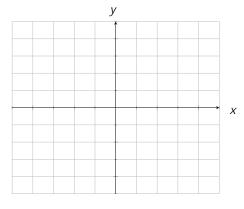
(d)
$$i(x) = \int_{y}^{D} X$$



(e)
$$j(x) = \sqrt[p]{3}x + 1$$



(f)
$$k(x) = \begin{cases} 2 & x & 1 \\ x & 2 & x > 1 \\ y & x & x > 1 \end{cases}$$



9.	The points (1;2) and (1;4) lie direc	tly opposite each oth	her on a circle such	that the distance	between
	the two points	gives the diameter of th	e circle. Answer the	following: (9 pts)		

(a) What is the radius of the circle?

(b) Where is the center of the circle?

(c) Using the above, write down the equation of the circle in standard form

10. Find the inverse of the function $f(x) = \frac{1}{2x^3} + 7$ (4 pts)

11.	The small amount you put in your savings account a few years ago is growing rapidly(Yay!). Below is a graph of your balance $A(t)$ in dollars, as a function 0 Td [(A)]TJ/s					

13	The graph	of a polyno	omial. P(x)	has the follo	owing properties	: (8 nts)

- i. The graph has end behavior that is consistent with the end behavior of $y = x^3$ (In arrow notation: P(x) / 1 as x / 1 and P(x) / 1 as x / 1).
- ii. The graph crosses at x-intercept (2/0).
- iii. The graph bounces (touches but does not cross) at x-intercept (1;0).
- iv. The graph has no other *x*-intercepts.
- v. The graph has *y*-intercept (0; 4).

Answer the following for P(x):

(a) Sketch a graph of P(x) that satisfies **all** of the given information.

