Review Chapter 1

Find the domain of the following function

$$f(x) = \sqrt{2 - x}$$

Solve the equation algebraically

$$x^2 - 5 = 8 - x^2$$

Solve the equation algebraically

$$x(2x-5)=12$$

- Match the equation with the graph with the table

(A) $y = 2x + 3$

(B) $y = x^2 + 5$

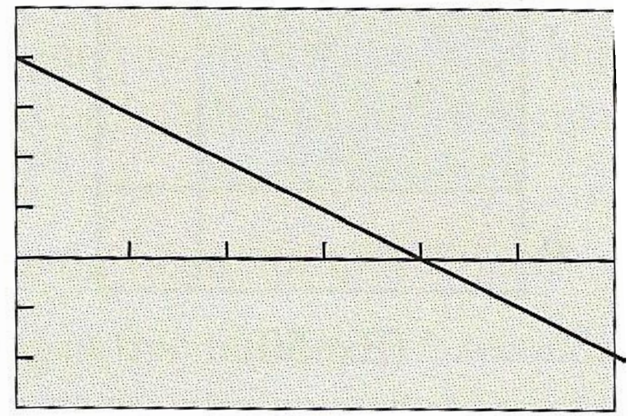
(C) $y = 12 - 3x$

(D) $y = 4x + 3$

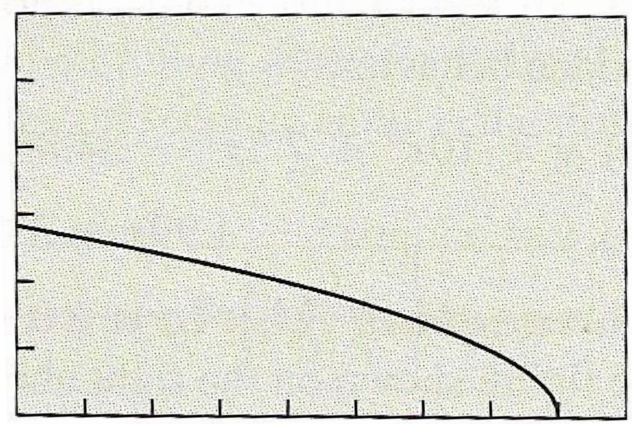
(E) $y = \sqrt{8 - x}$

x	1	2	3	4	5	6
y	6	9	14	21	30	41

x	0	2	4	6	8	10
y	3	7	11	15	19	23



[0, 6] by [–9, 15]



[0, 9] by [0, 6]

Find the domain of the function algebraically

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

Find the domain of the function algebraically

$$f(x) = \frac{\sqrt{4-x}}{(x+1)(x^2+1)}$$

Find the range of the function algebraically

$$f(x) = 10 - x^2$$

Find the range of the function algebraically

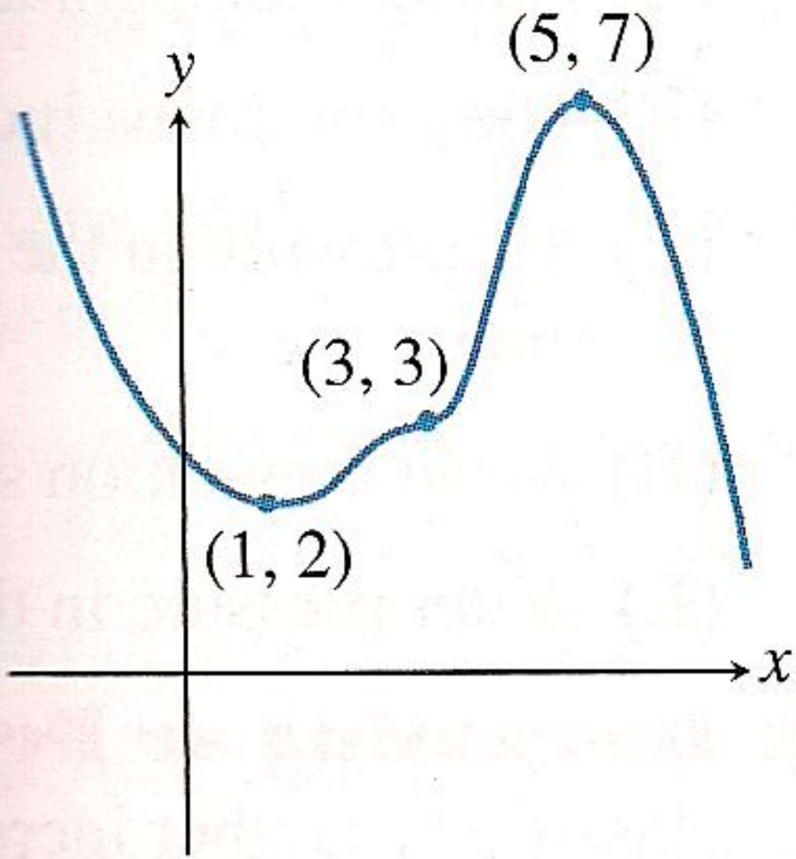
$$f(x) = 5 + \sqrt{4 - x}$$

Graph the function and tell whether or not it has a point of discontinuity at x = 0. If there is a discontinuity, tell whether it is removeable or non-removeable.

$$f(x) = \frac{x^3 + x}{x}$$

State whether each labeled point identifies a local maximum, a local minimum, or neither. Identify intervals on which the function is decreasing and increasing.

6.



Determine whether the function is even, odd, or even.

A) $f(x) = 5x^4 + 1$

B) $f(x) = -x^2 + x + 2$

C) $f(x) = 2x^3 + x$

Determine all horizontal and vertical asymptotes

$$f(x) = \frac{x^2 + 2}{x^2 - 1}$$

Determine all horizontal and vertical asymptotes

$$f(x) = \frac{2x-4}{x^2-4}$$

63. $y = \dfrac{x + 2}{2x + 1}$

64. $y = \dfrac{x^2 + 2}{2x + 1}$

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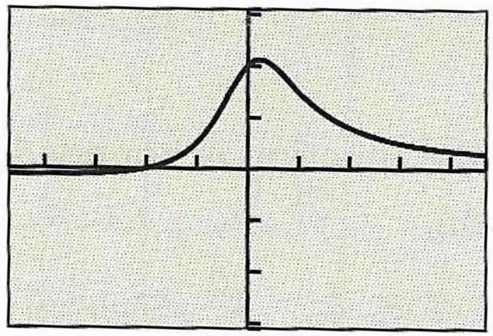
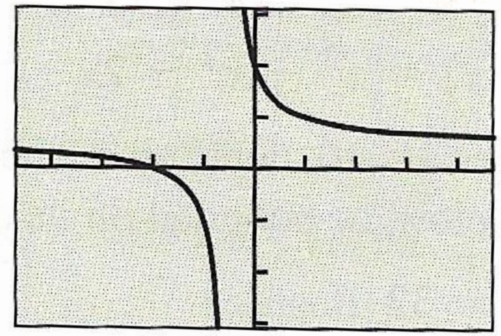
66. $y = \dfrac{x^3 + 2}{2x^2 + 1}$



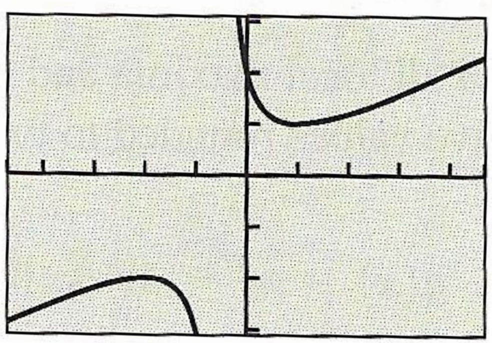
[–4.7, 4.7] by [–3.1, 3.1]

(a)



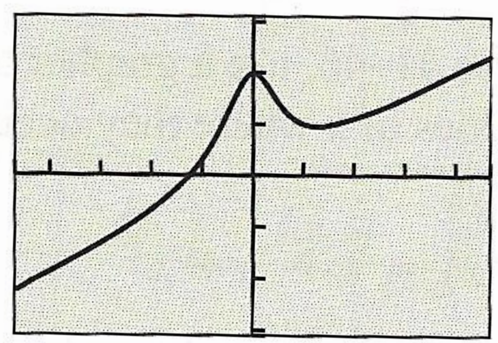
[–4.7, 4.7] by [–3.1, 3.1]

(b)



[–4.7, 4.7] by [–3.1, 3.1]

(c)



[–4.7, 4.7] by [–3.1, 3.1]

(d)

Identify which of the twelve basic functions are increasing on their entire domain.

Identify which of the twelve basic functions have infinitely many extrema.

Graph the piecewise function

$$f(x) = \begin{cases} 2x+1 & x<0 \\ x^2+3 & x \geq 0 \end{cases}$$

Find formulas for f/g and g/f. Give the domain of each.

$$f(x) = \sqrt{x-2} \quad \text{and} \quad g(x) = x^2$$

Find formulas for f(g(x) and g(f(x)). Give the domain of each.

$$f(x) = x^2 - 2 \quad \text{and} \quad g(x) = \sqrt{x+1}$$

Find a formulas for $f^{-1}(x)$. Give the domain

$$f(x) = \sqrt{x+2}$$

Find a formulas for $f^{-1}(x)$. Give the domain

$$f(x) = \sqrt{x+2}$$

Confirm that f(x) and g(x) are inverses.

$$f(x) = x^3 + 1 \qquad g(x) = \sqrt[3]{x - 1}$$

Sketch graphs of the following.

$$f(x) = |x|$$

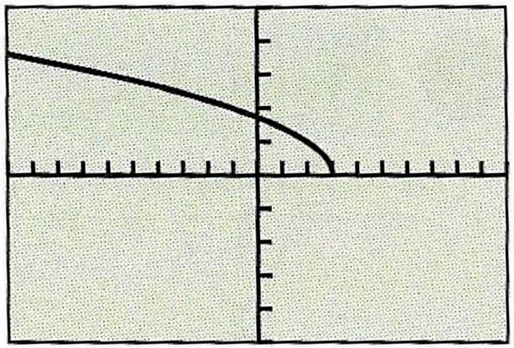
$$\mathrm{g}(\mathrm{x}) = |x+2|$$

$$\mathrm{h}(\mathrm{x}) = |x| - 3$$

$$\mathrm{j}(\mathrm{x}) = |2x|$$

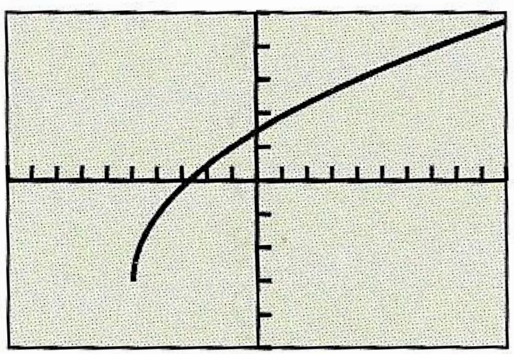
Draw the functions inverse

26.



[–10, 10] by [–5, 5]

28.

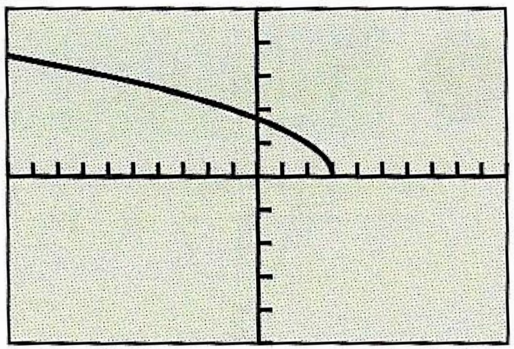


[–10, 10] by [–5, 5]

Vertical stretch = 2

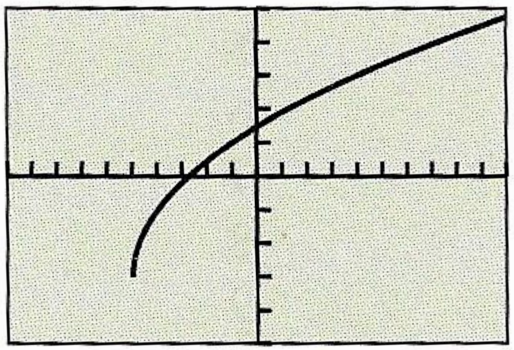
Write a formula for each function

26.



[–10, 10] by [–5, 5]

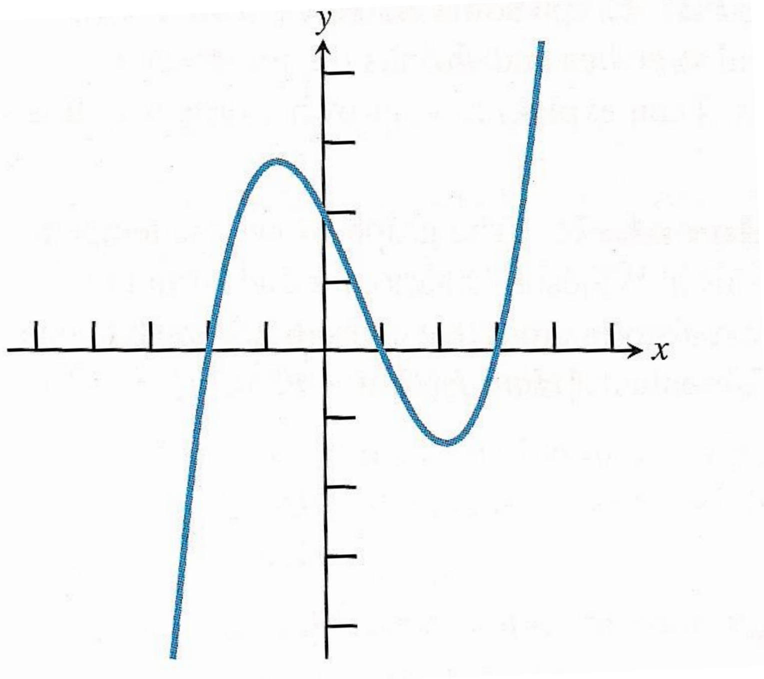
28.



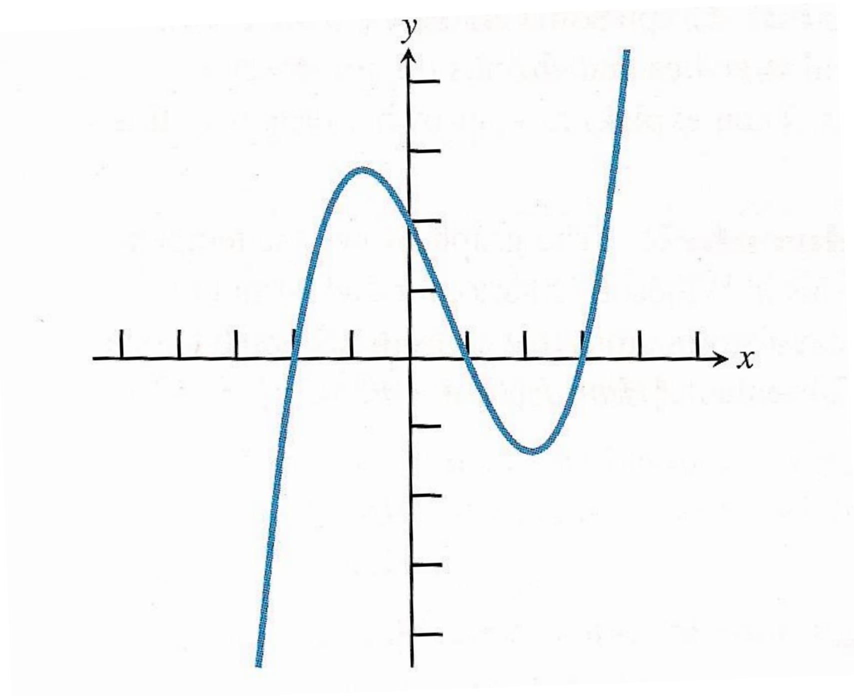
[–10, 10] by [–5, 5]

Vertical stretch = 2

- Transform the given function by a vertical stretch by a factor of 3



Transform the given function by a horizontal stretch by a factor of 1/2



Write an equation whose graph is g.

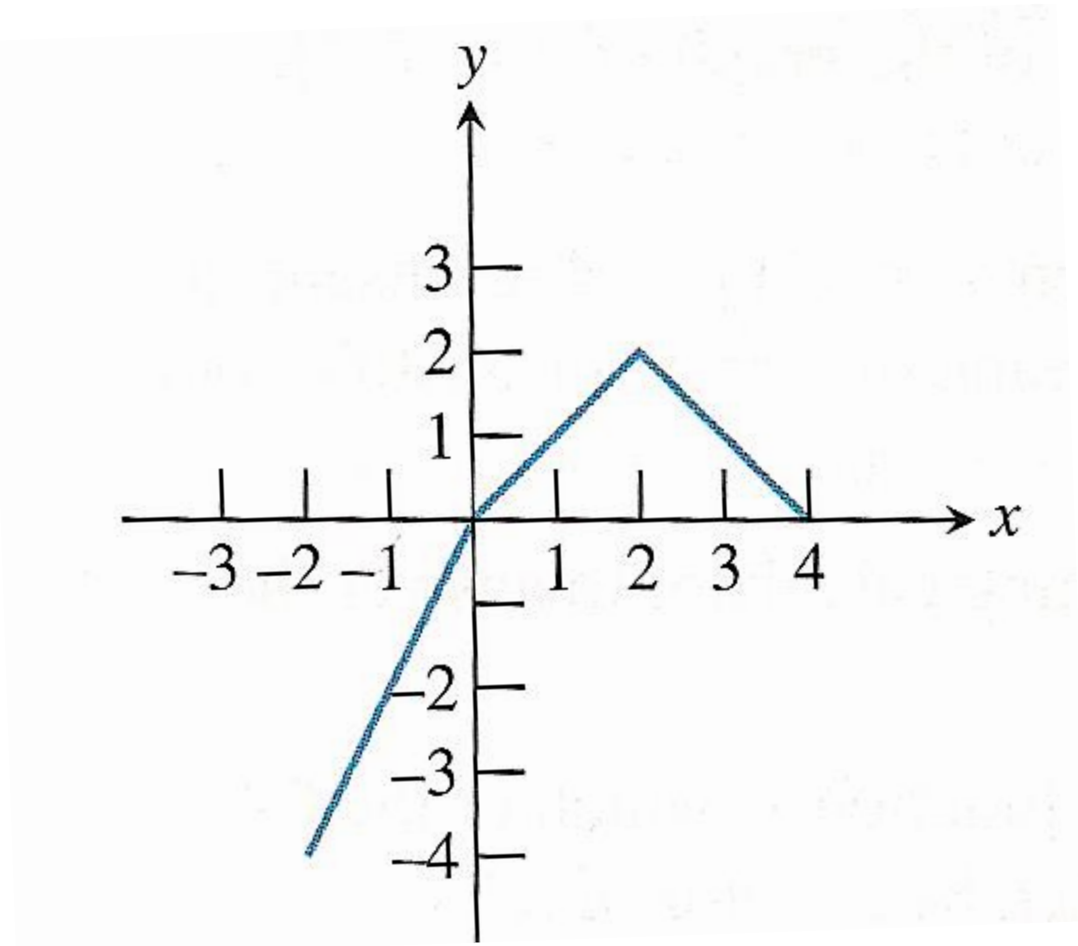
$f(x) = |x|$ a shift right 4 units, then a vertical stretch by a factor of 2, and shift down 4

Write an equation whose graph is g.

$f(x) = x^2$

a shift left 2 units, then a horizontal stretch by a factor of 2, and shift up 3

Sketch the graph of $g(x) = 3+2f(x-1)$



Sketch the graph of $g(x) = -f(2x) + 2$