

Review Chapter 1

Find the domain of the following function

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

- Match the equation with the graph or the table (2 equations go with the graphs and 2 equations go with the tables)

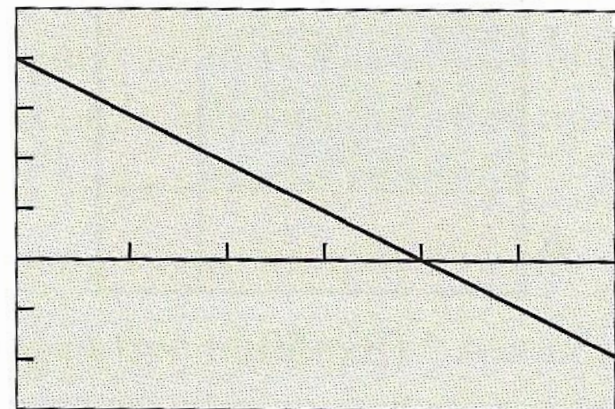
(A) $y = 2x + 3$

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

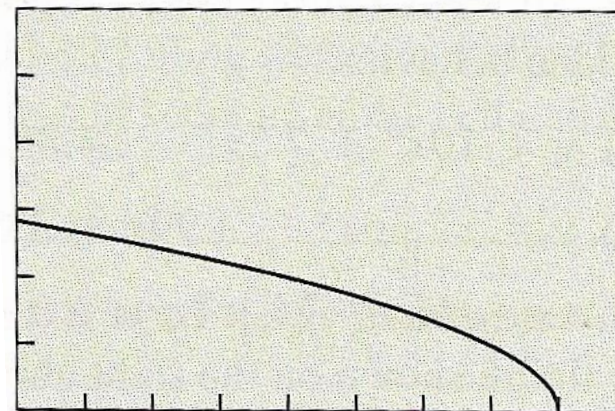
(C) $y = 12 - 3x$

(D) $y = 4x + 3$

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



$[0, 6]$ by $[-9, 15]$



$[0, 9]$ by $[0, 6]$

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

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

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

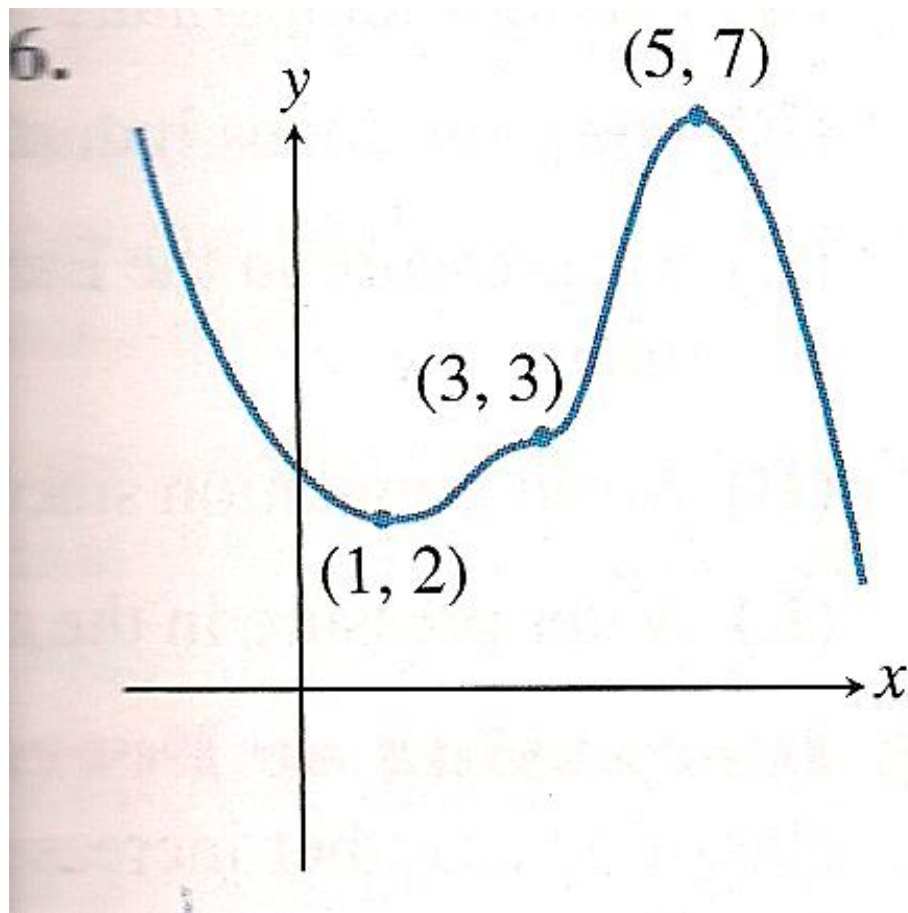
Find the range of the function algebraically

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

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 removable or non-removable.

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

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



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

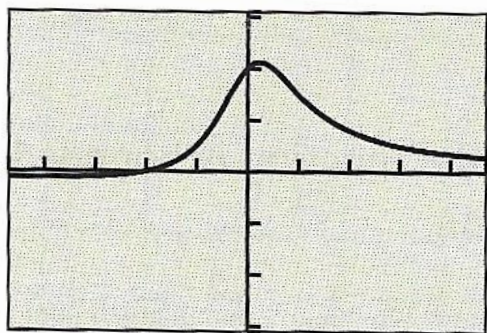
$$f(x) = \frac{2x - 4}{x^2 - 4}$$

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

$$65. \quad y = \frac{x + 2}{2x^2 + 1}$$

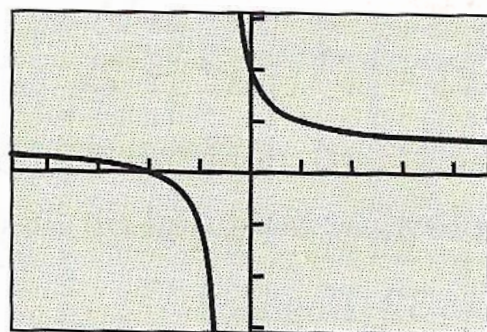
$$64. \quad y = \frac{x^2 + 2}{2x + 1}$$

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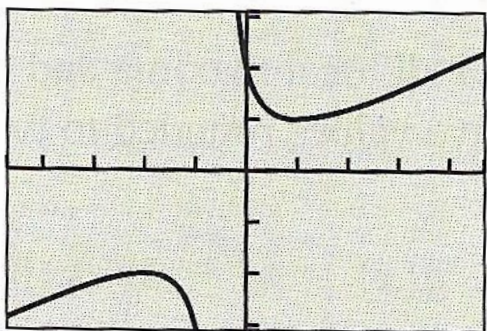
$[-4.7, 4.7]$ by $[-3.1, 3.1]$

(a)



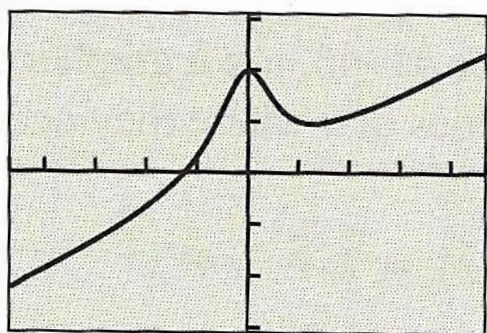
$[-4.7, 4.7]$ by $[-3.1, 3.1]$

(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

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

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

$$f(x) = x^3 + 1$$

$$g(x) = \sqrt[3]{x - 1}$$

Sketch graphs of the following.

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

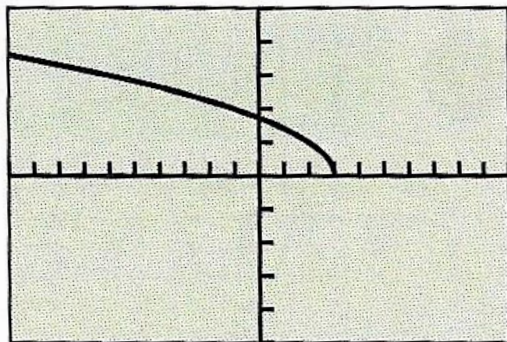
$$g(x) = |x + 2|$$

$$h(x) = |x| - 3$$

$$j(x) = |2x|$$

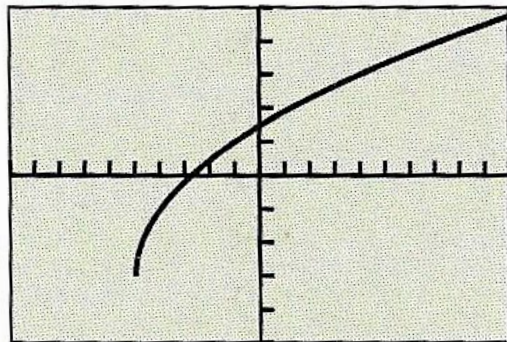
Draw the functions inverse

26.



$[-10, 10]$ by $[-5, 5]$

28.

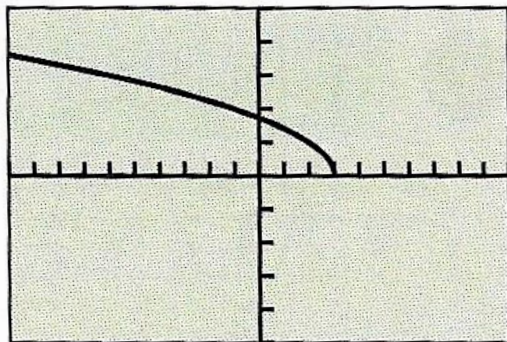


$[-10, 10]$ by $[-5, 5]$

Vertical stretch = 2

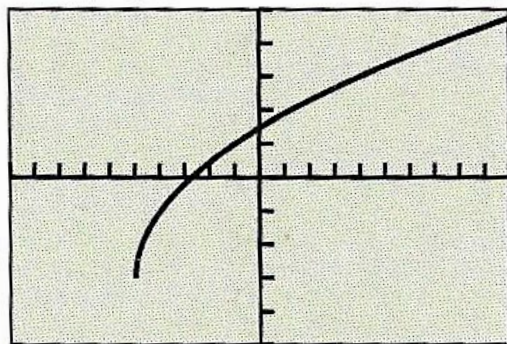
Write a formula for each function

26.



$[-10, 10]$ by $[-5, 5]$

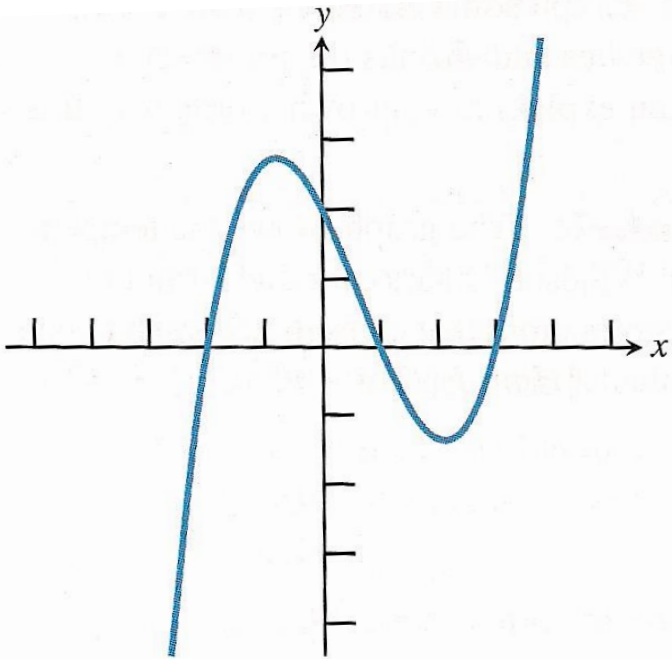
28.



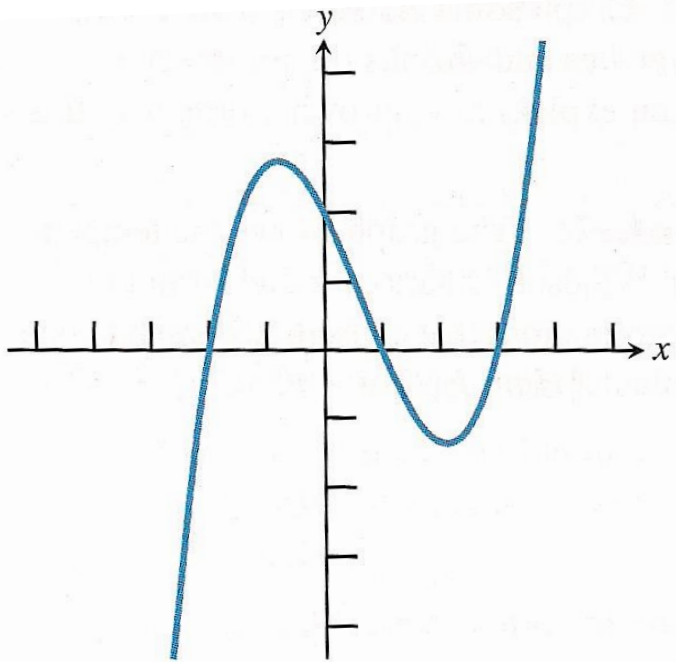
$[-10, 10]$ by $[-5, 5]$

Vertical stretch = 2

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



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



Write an equation whose graph is g .

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

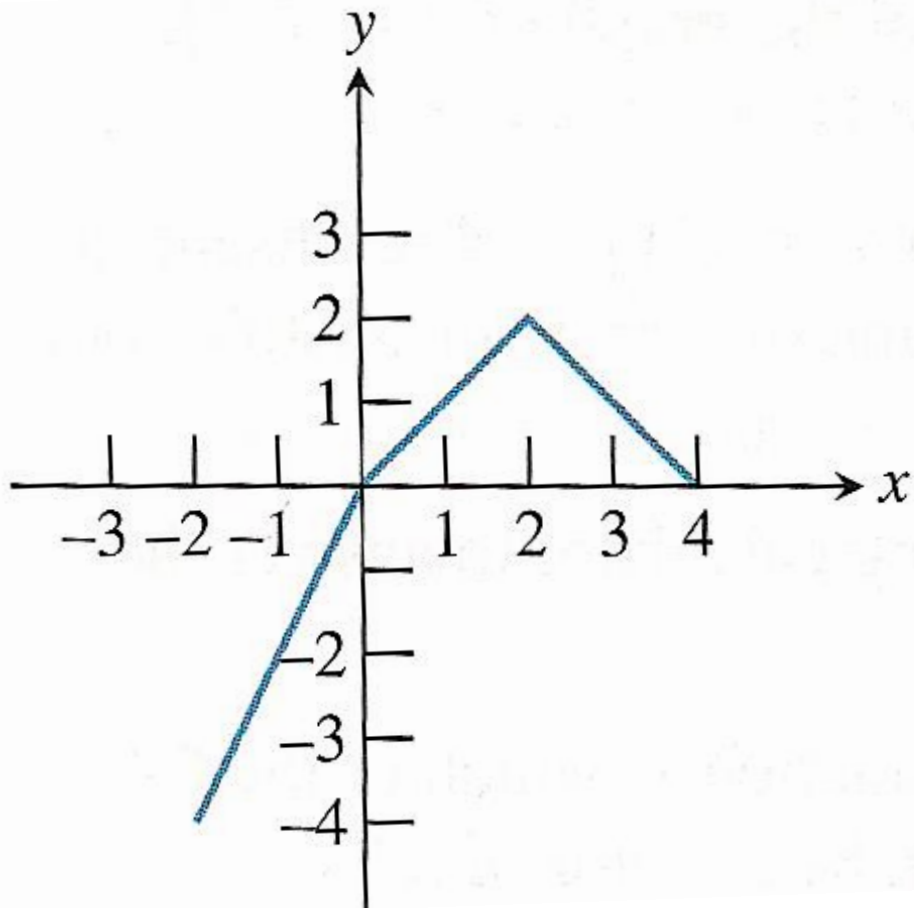
a shift right 4 units, then a vertical stretch by a factor of 2, and shift down 4

Write an equation whose graph is g .

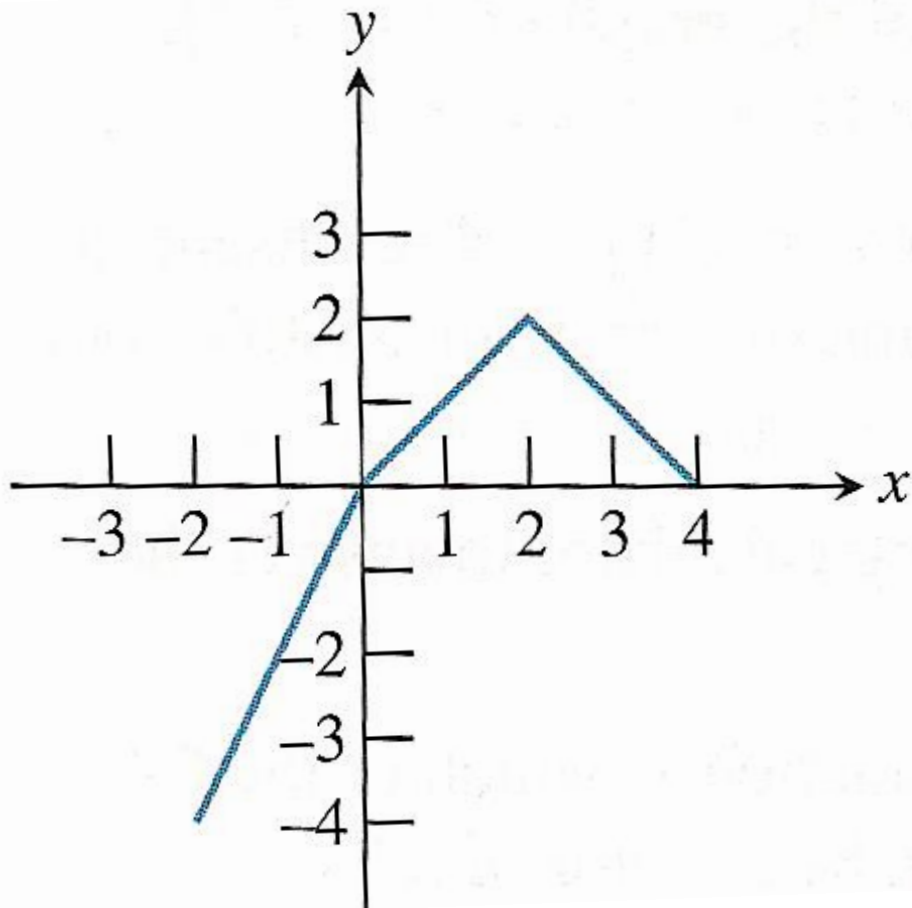
$$f(x) = x^2$$

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 $g(x) = -f(2x) + 2$



Find formulas for $f + g$, $f - g$, fg , and f/g .

Give the domain of each.

$$f(x) = 2x + 5 \quad \text{and} \quad g(x) = 5x - 3$$

Determine the end behavior for the function below. Assume that there are arrows on each end of the graph.

