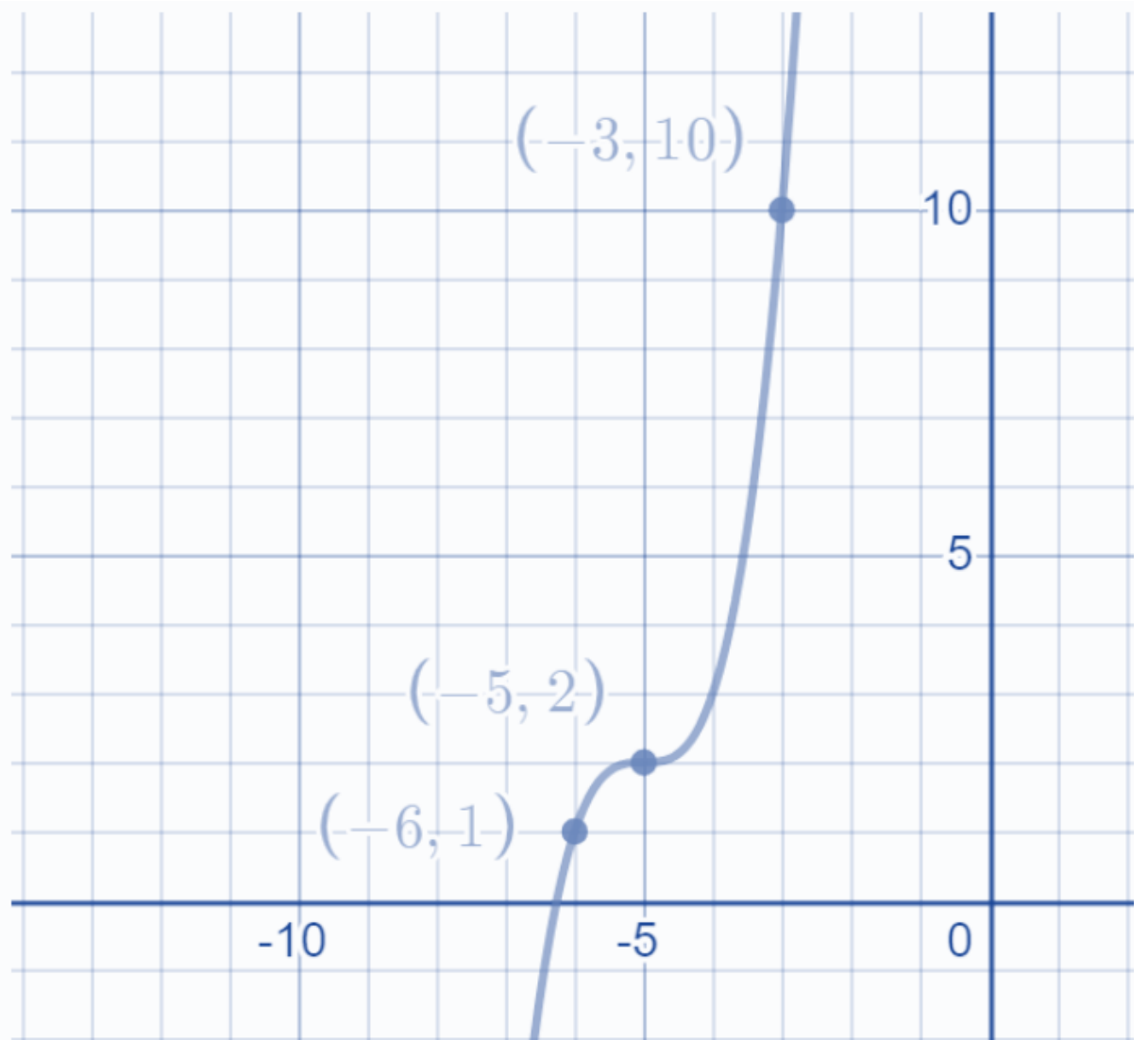


Math 1050 CBE 2 Review

UtahStateUniversity®

Problem 1

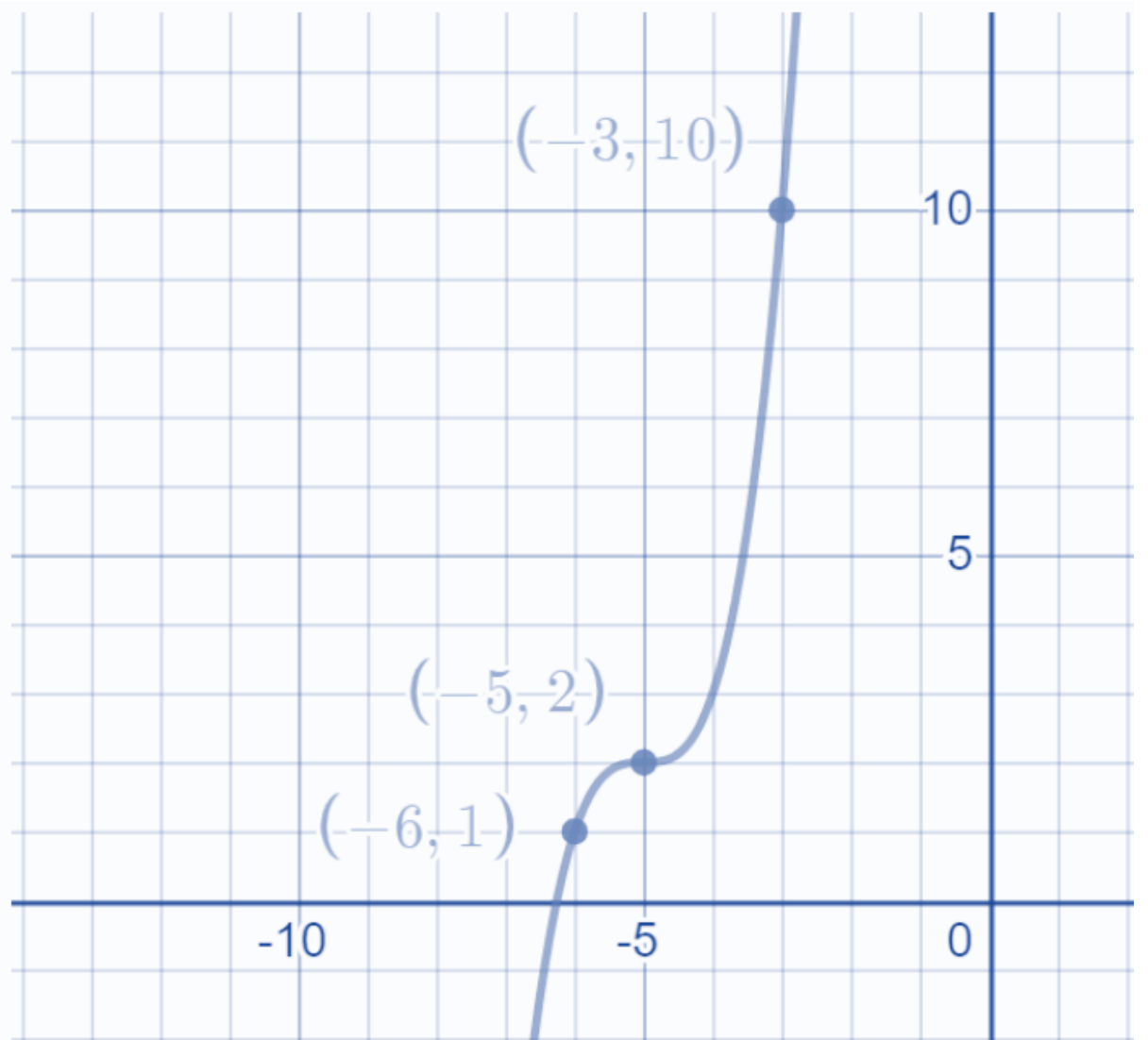
- Write the equation for the graph.



Problem 1

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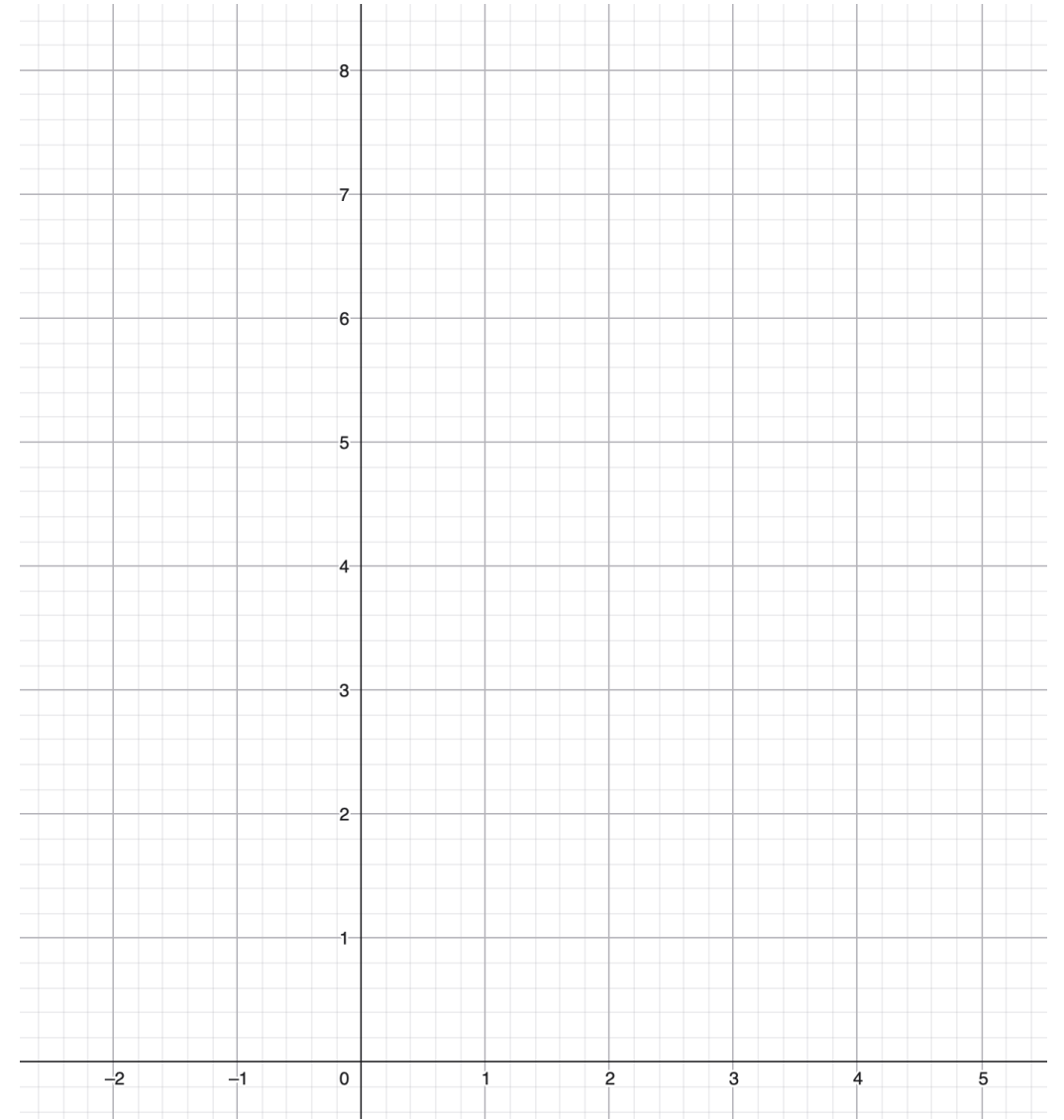
Solution: $y = (x + 5)^3 + 2$



Problem 2

- Draw the graph of the function

$$f(x) = \frac{5}{4}(x - 1)^2 + 3.$$

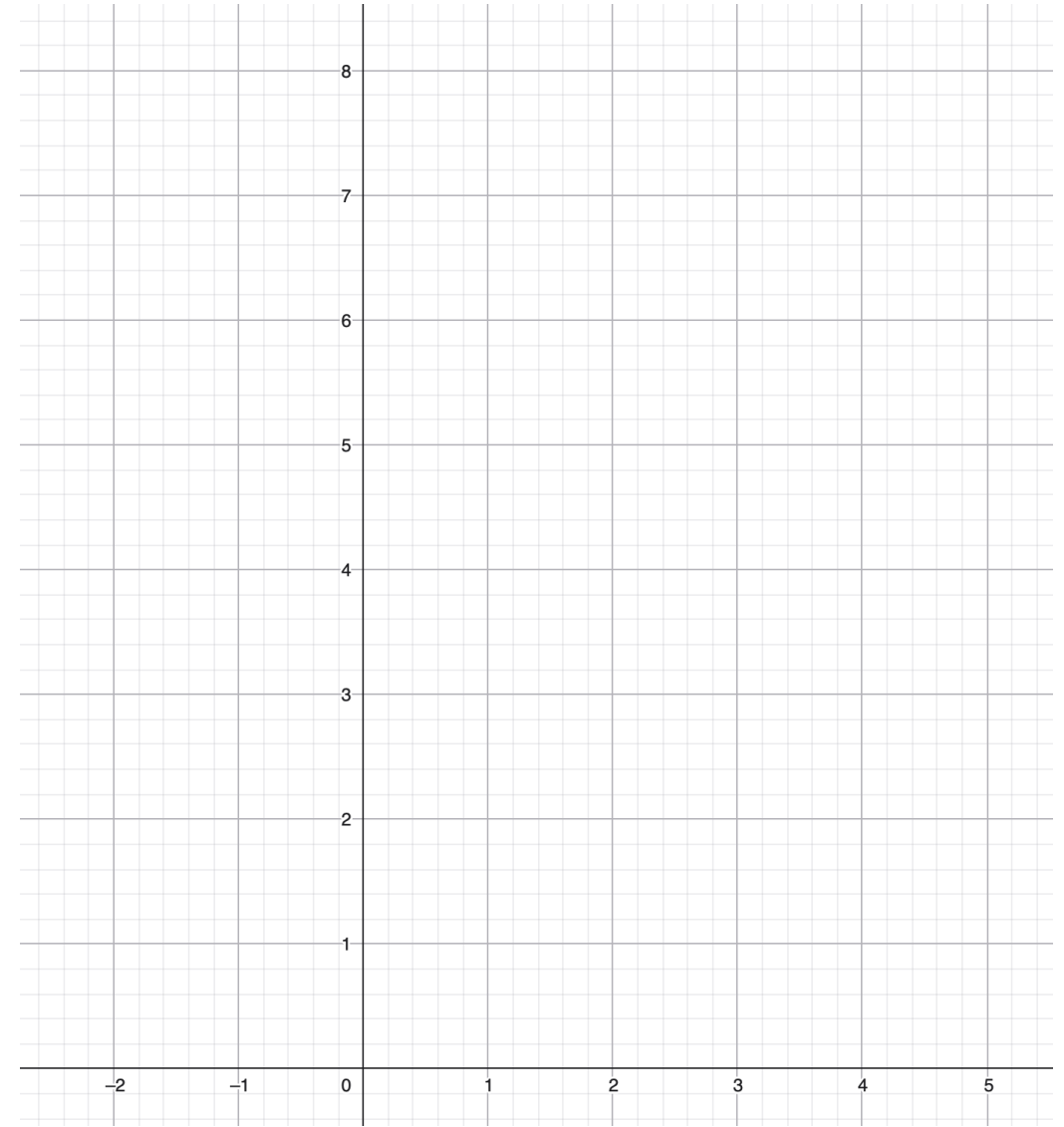
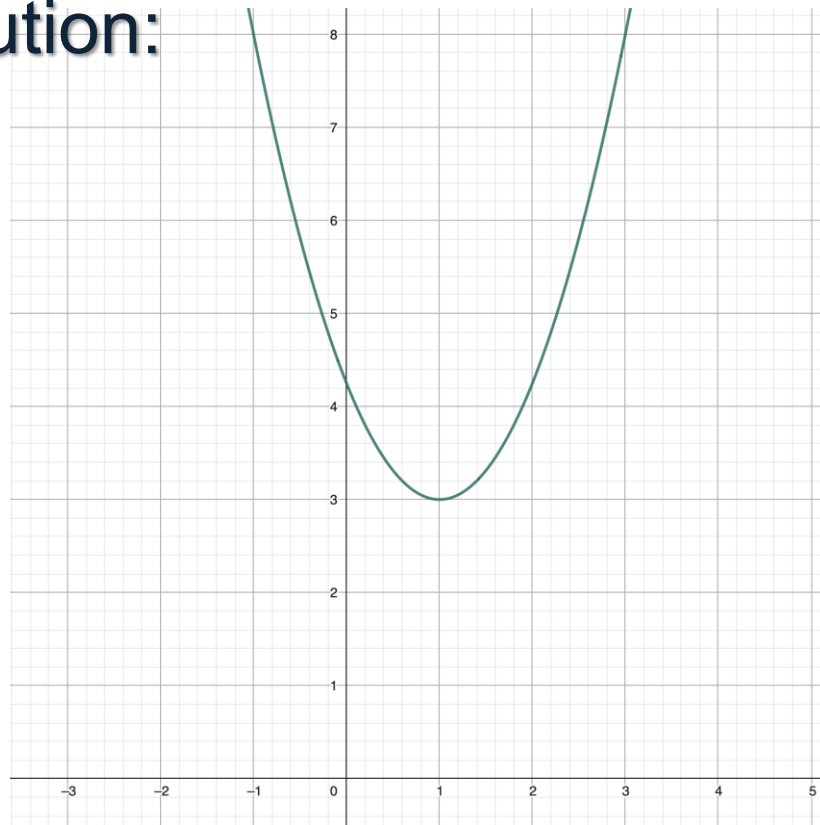


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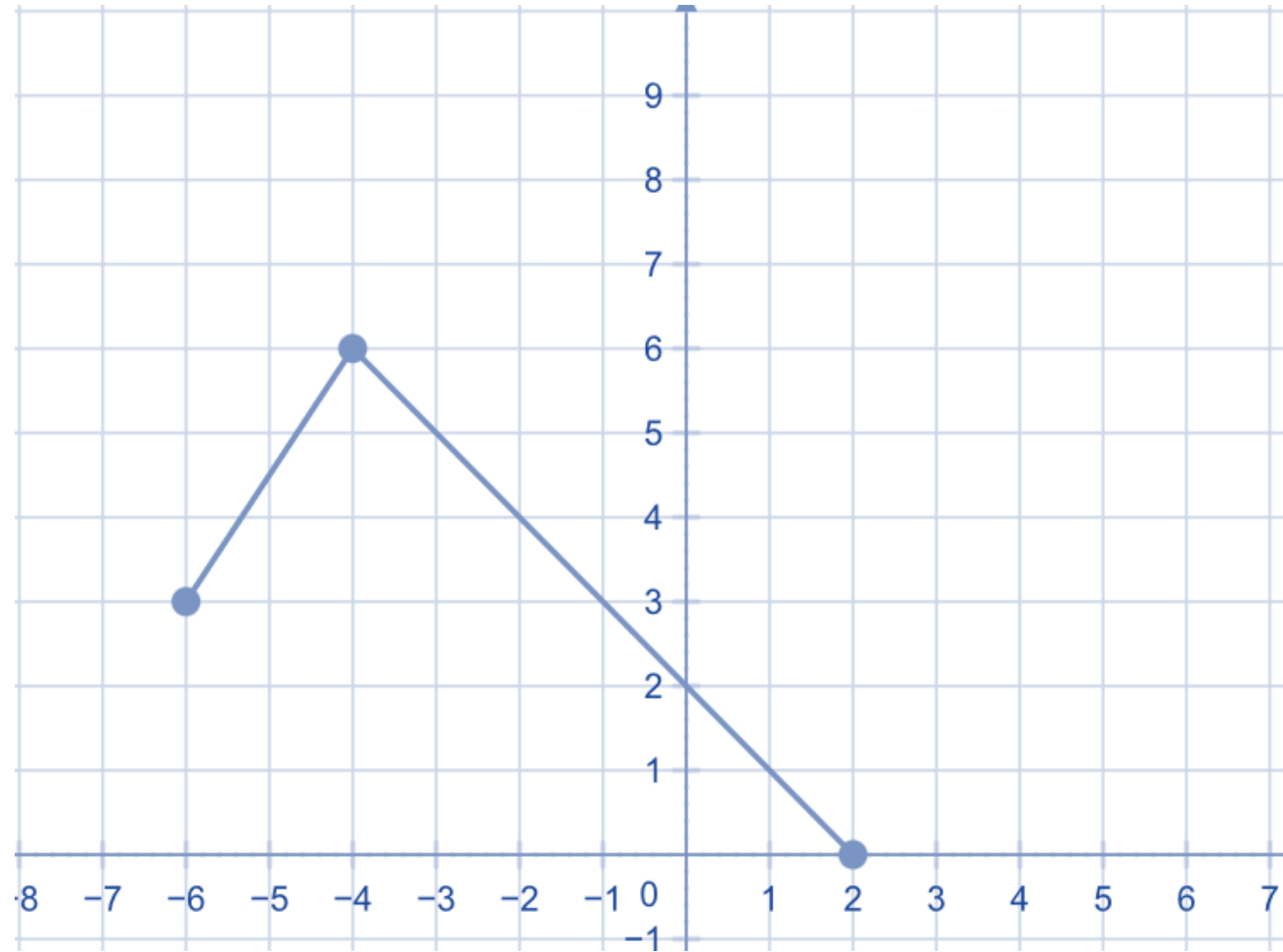
Solution:



Problem 3

The graph of the equation $y = f(x)$ is shown.

- Draw the graph of the equation $y = \frac{1}{3}f(x - 4) + 2$



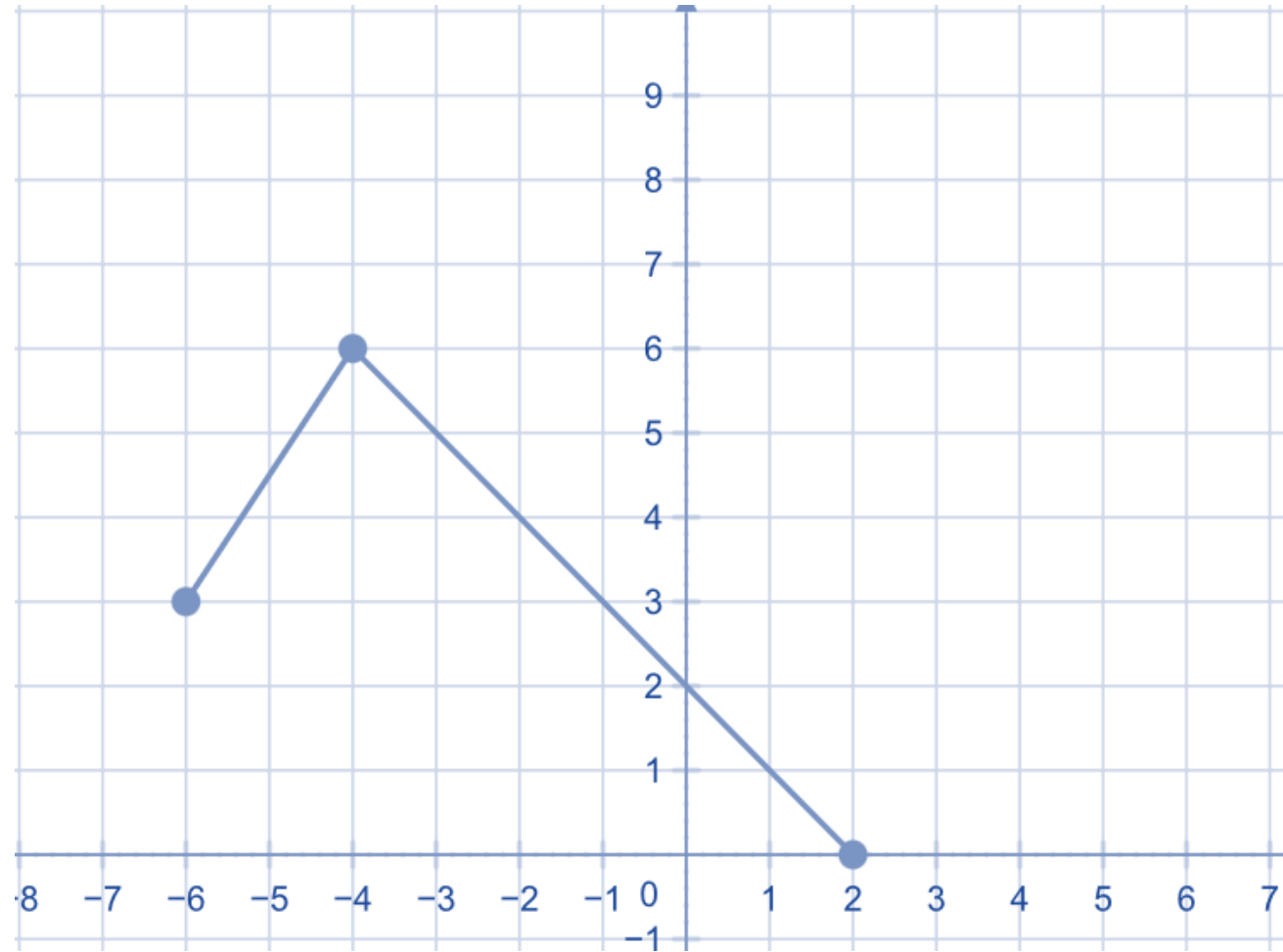
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The graph of the equation $y = f(x)$ is shown.

- Draw the graph of the equation $y = \frac{1}{3}f(x - 4) + 2$

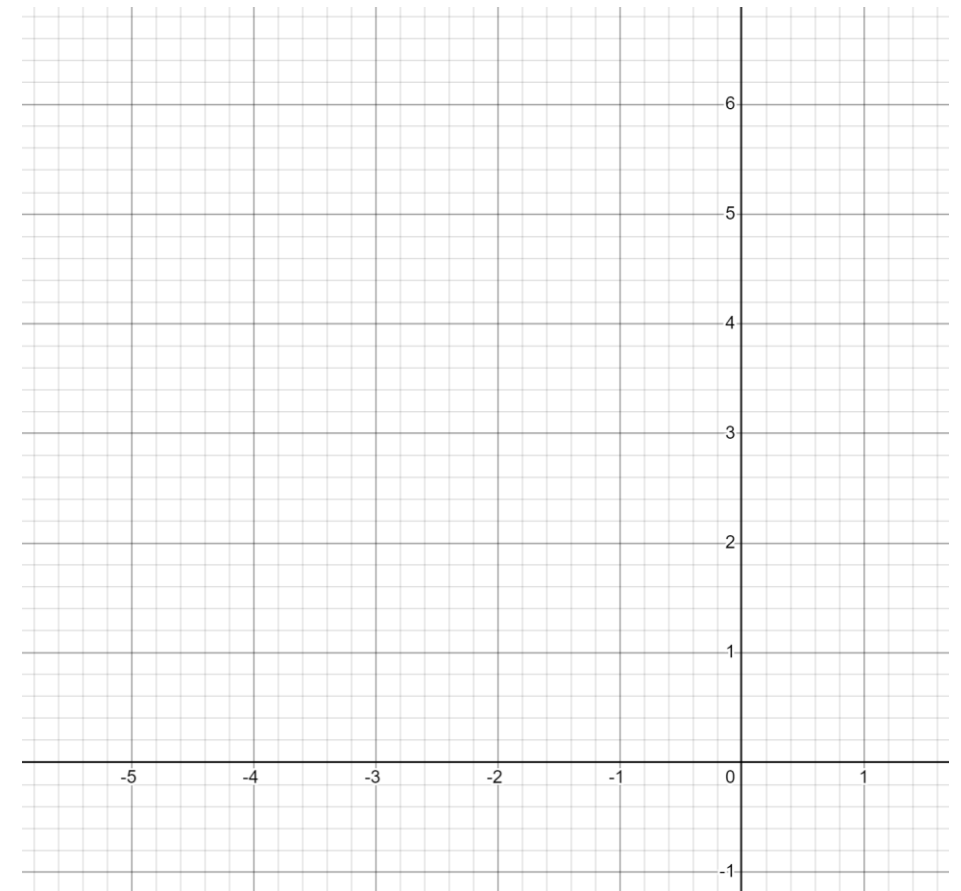
Solution Points:

$(-2, 3)$, $(0, 4)$, $(6, 2)$



Problem 4

- Graph the circle defined by the equation $(x + 3)^2 + (y - 3)^2 = 4$



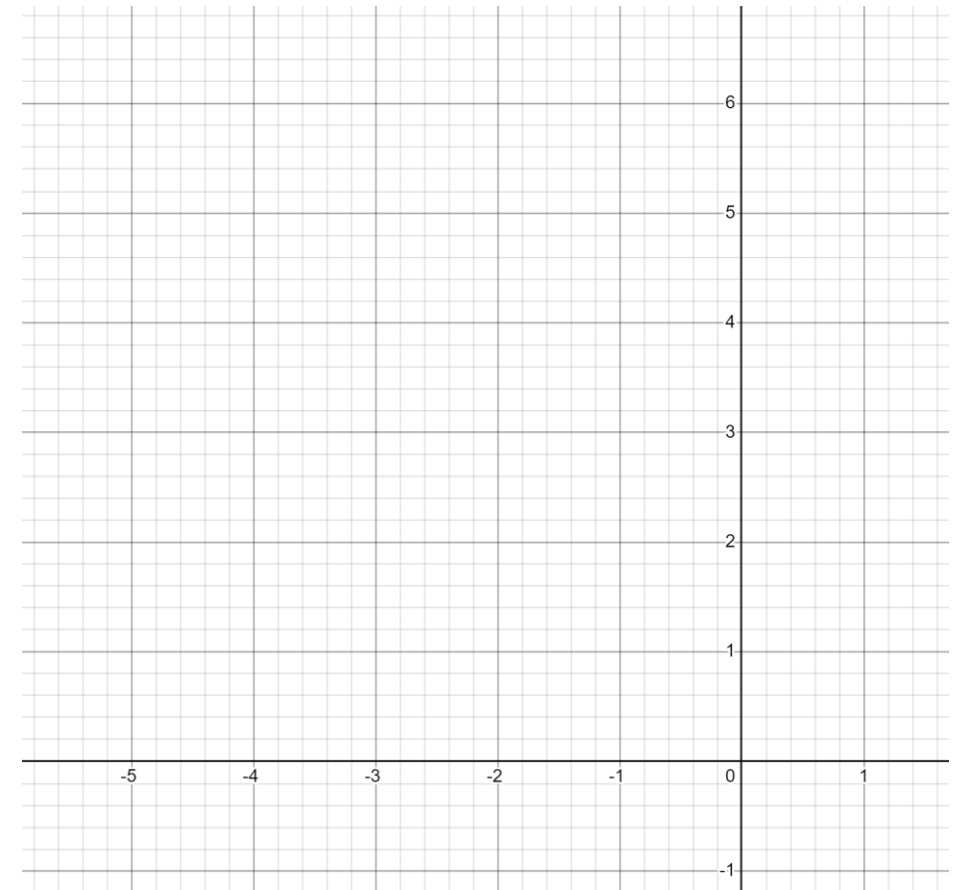
Problem 4

- Graph the circle defined by the equation $(x + 3)^2 + (y - 3)^2 = 4$

Solution:

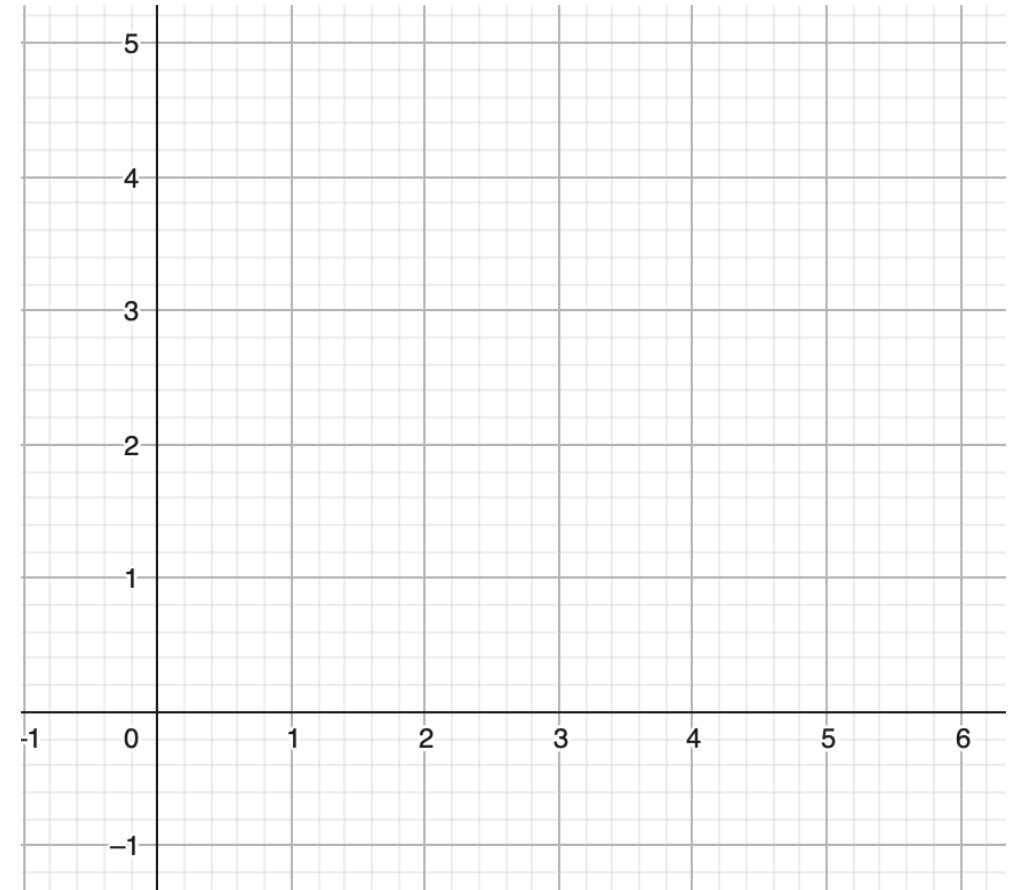
Center: $(-3, 3)$

Radius: 2



Problem 5

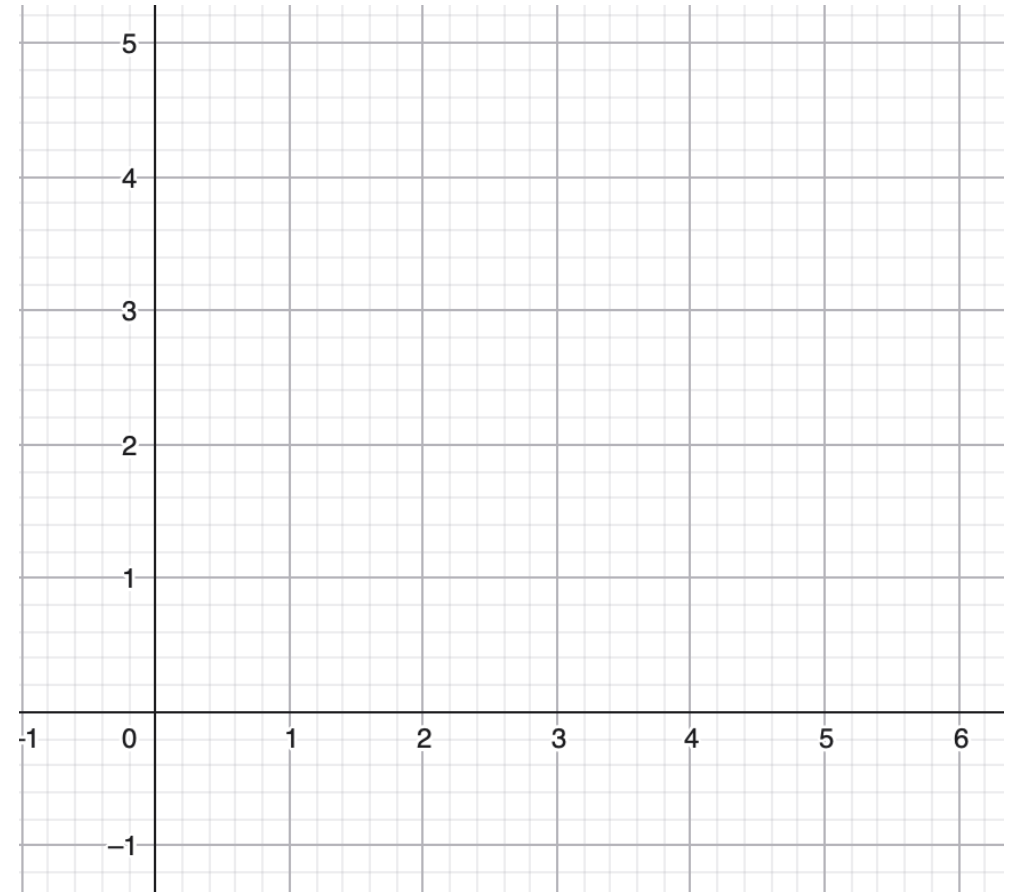
- Write out an equation for the circle that contains a diameter with endpoints $(1, 3)$ and $(5, 1)$



Problem 5

- Write out an equation for the circle that contains a diameter with endpoints $(1, 3)$ and $(5, 1)$

- Solution: $(x - 3)^2 + (y - 2)^2 = 5$



Problem 6

Given $f(x) = \frac{1}{x^2-4}$ and $g(x) = x - 5$,

- Find $(f + g)(3)$.
- Find $(f \circ g)(1)$.
- Find the domain of $(f \circ g)(x)$.

Problem 6

Given $f(x) = \frac{1}{x^2-4}$ and $g(x) = x - 5$,

- Find $(f + g)(3)$.
- Find $(f \circ g)(1)$.
- Find the domain of $(f \circ g)(x)$.

Solutions: $-\frac{9}{5}$, $\frac{1}{12}$, $(-\infty, 3) \cup (3, 7) \cup (7, \infty)$

Problem 7

Let the function f be defined by the set $\{(1,2),(3,5),(4,2),(5,1)\}$.

Let the function g be defined by the set $\{(2,4),(4,6),(3,3),(1,2)\}$.

- Write out the ordered pairs for the function $f \cdot g$.
- Write out the ordered pairs for the function $f \circ g$.

Problem 7

Let the function f be defined by the set $\{(1,2),(3,5),(4,2),(5,1)\}$.

Let the function g be defined by the set $\{(2,4),(4,6),(3,3),(1,2)\}$.

- Write out the ordered pairs for the function $f \cdot g$.
- Write out the ordered pairs for the function $f \circ g$.

Solutions:

- $f \cdot g$ pairs: $\{(1,4),(3,15),(4,12)\}$,
- $f \circ g$ pairs: $\{(2,2),(3,5)\}$

Problem 8

Let the function f be defined by $f(x) = \frac{\sqrt{x}}{2}$.

Let the function g be defined by $g(x) = 5x^2 - 2x + 1$.

Let the function h be defined by $h(x) = 3x^2$.

- Determine the value for $(f \circ g \circ h)(1)$ and simplify the result.
- Determine the value for $(g \circ h \circ f)(1)$ and simplify the result.
- Use interval notation to write the domain of the function $(g \circ h \circ f)$.

Problem 8

Let the function f be defined by $f(x) = \frac{\sqrt{x}}{2}$.

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- Determine the value for $(g \circ h \circ f)(1)$ and simplify the result.
- Use interval notation to write the domain of the function $(g \circ h \circ f)$.

Solution: $[0, \infty)$

Problem 8

$$f(x) = \frac{\sqrt{x}}{2},$$

$$g(x) = 5x^2 - 2x + 1,$$

$$h(x) = 3x^2.$$

$$(f \circ g \circ h)(1) =$$

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Domain of $(g \circ h \circ f)$:

Problem 8

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$$h(x) = 3x^2.$$

$$(f \circ g \circ h)(1) =$$

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Domain of $(g \circ h \circ f)$:

$$\text{Solutions: } \frac{\sqrt{40}}{2}, \frac{37}{16}, [0, \infty)$$

Problem 9

- Determine an expression for the inverse function of $f(x) = \frac{3x+5}{2x-2}$.
- Using interval notation, write the domain and range for the inverse function f^{-1} .

Problem 9

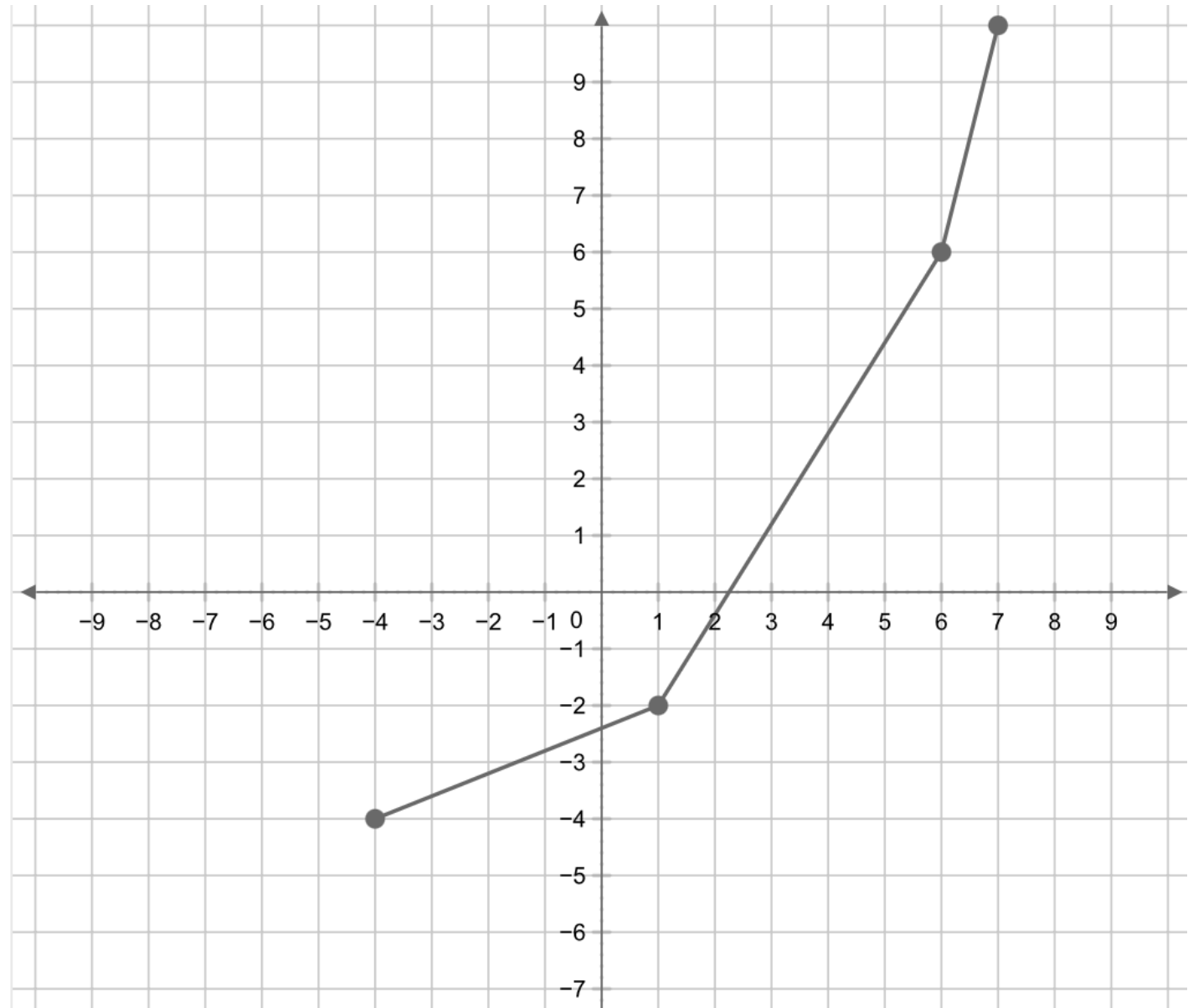
- Determine an expression for the inverse function of $f(x) = \frac{3x+5}{2x-2}$.
- Using interval notation, write the domain and range for the inverse function f^{-1} .

Solution: $f^{-1}(x) = \frac{2x+5}{2x-3}$, Domain: $\left(-\infty, \frac{3}{2}\right) \cup \left(\frac{3}{2}, \infty\right)$, Range: $(-\infty, 1) \cup (1, \infty)$

Problem 10

The graph of function f is given.

- Graph the inverse of function f .

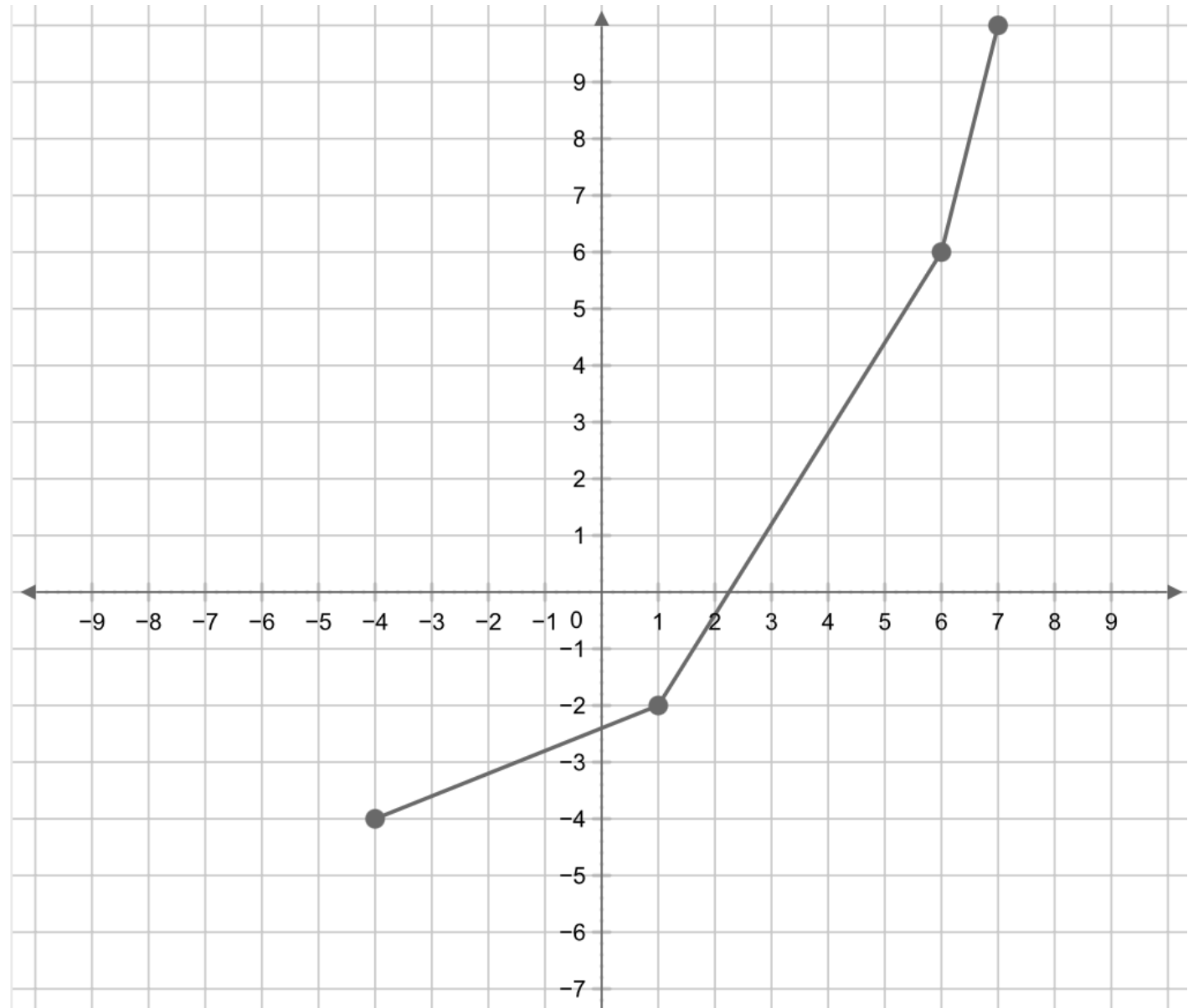
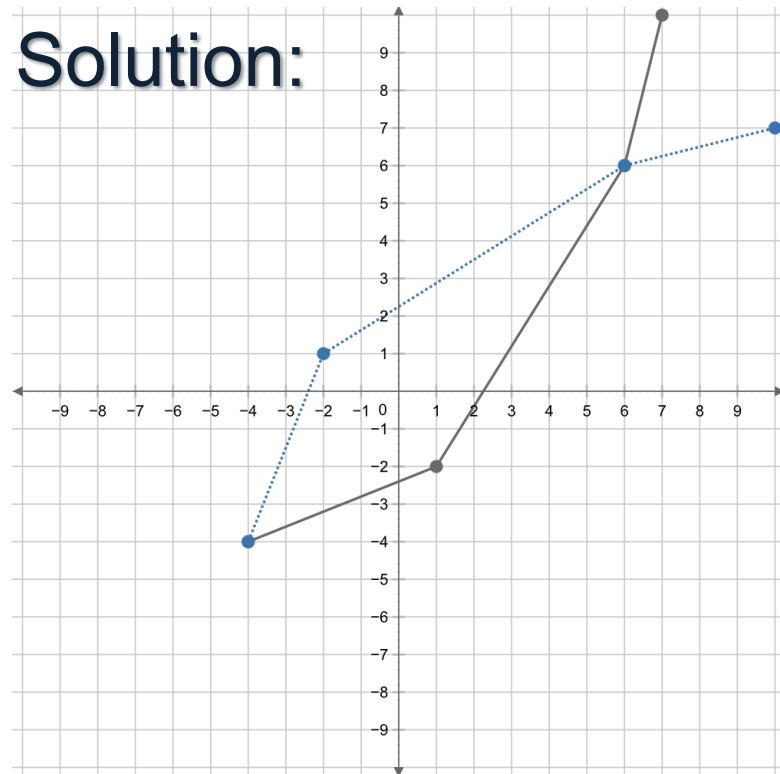


Problem 10

The graph of function f is given.

- Graph the inverse of function f .

Solution:



Other Resources

Aggie Math Learning Center

- Visit usu.edu/math/amlc for more videos, resources, tutoring times, and recitation leader office hours

