

Task A

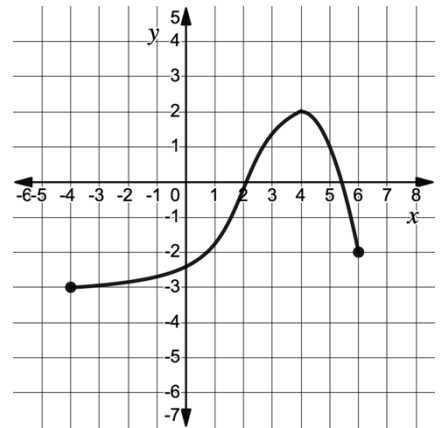
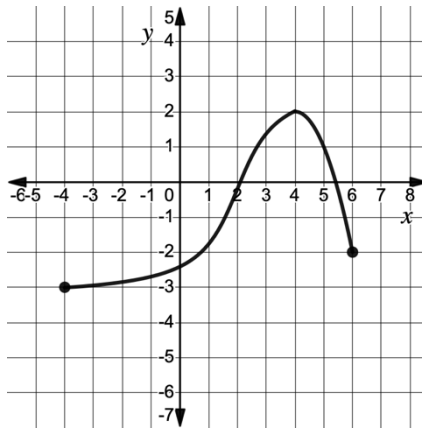
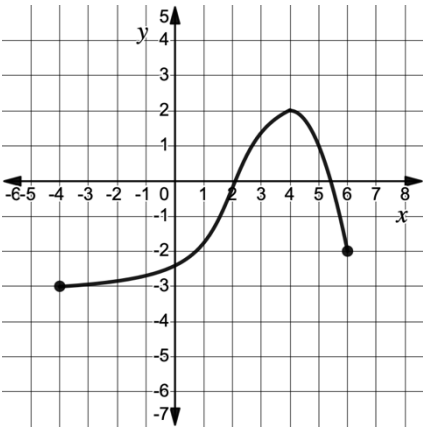
The table below gives data about the average sales price of a US house, in dollars, for various years.

Year	Average Sales Price of US Houses
1993	\$144,700
1995	\$153,500
1998	\$180,000
2000	\$202,900
2012	\$278,000
2015	\$348,000
2017	\$374,800
2020	\$383,000
2021	\$418,600
2022	\$514,100

- What do you notice? What do you wonder?
- On average, how much did the sales price of a US house increase per year between 1993 and 2022? Indicate proper units.
- Over what time interval did the average sales price increase the fastest?
- Using only the data prior to 2020 in the above table, would a linear function be appropriate to model the relationship between the average price of a house in the US and the year? Explain how you know.
- Could the data in this table be used to make a reasonable prediction for the price of a house in 2080? Explain.

Task B

The three graphs below show the complete graph of a function $y = f(x)$.



- On the first graph, sketch $y = g(x)$ where $g(x) = -f(x)$.
 - On the second graph, sketch $y = h(x)$ where $h(x) = f(x - 2)$.
 - On the third graph, sketch $y = w(x)$ where $w(x) = f(-x) + 2$.
- d. The graph of f passes through the points $A = (0, -2.4)$, $B = (2, 0)$ and $C = (5, 1)$.
Give the coordinates of the points corresponding to A , B , and C on the graphs of g , h , and w .

Task C

Write an equation for a function f that describes each of the scenarios below.

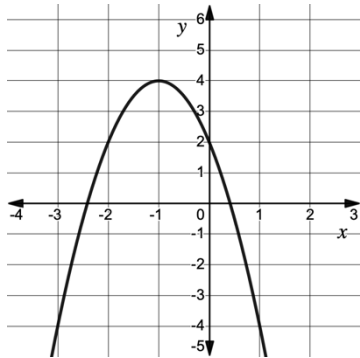
1. The parent function $y = x^2$ after it has been shifted 5 units to the left and 3 units up.

2.

x	-5	-4	-1	0	2	7
$f(x)$	0	-9	0	15	63	288

3. A concave down parabola with x-intercepts at $x = -7$ and $x = 2$.

4.



5. A parabola that passes through the points (3, 5), (4, 7), and (5,5).

6.

x	-3	-1	2	3	5	7
$f(x)$	13	5	8	13	29	53

7. A quadratic with a constant second difference of 2 and a y-intercept of -16.

8.

