MA140: Engineering Calculus

Week 1 Exercises

This is a collection of exercises (and answers!) from Week 1 MA140 lectures. You don't have to submit solutions for these, but you should work through them. Some may be similar to questions on the final exam.
There are only two this week, because the module is just getting going.

Exercise 1.2.1

Identify the largest possible subset of $\mathbb{R}$ that could be the domain of $f_2(x) = \sqrt{(x+4)(3-x)}$ if the co-domain is $\mathbb{R}$. What is the range?

Exercise 1.3.1

Sketch the graphs of

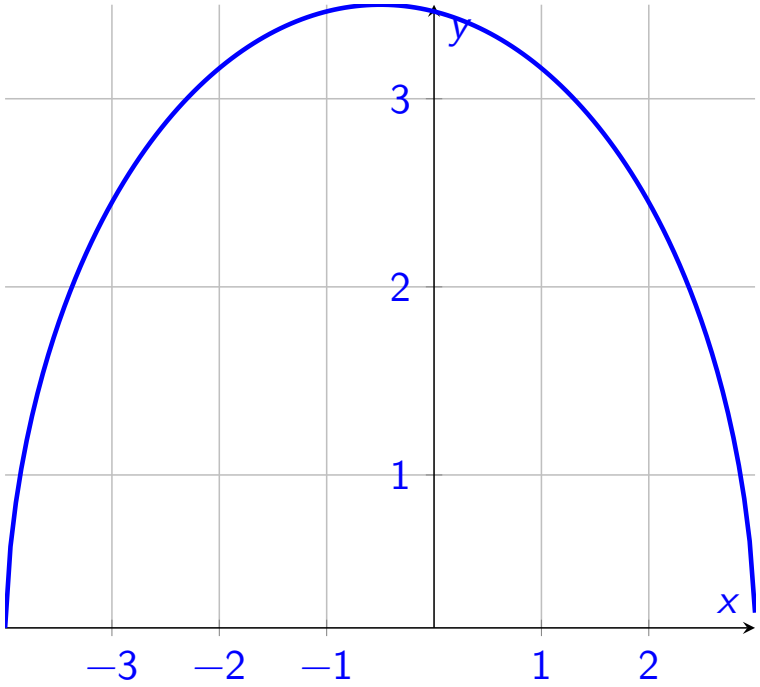
(i) $y = 5x^2 - 7$

(ii) $y = x^2 - 4x + 3$

(iii) $y = x^3 - 6x^2 - 11x - 6$

Answers

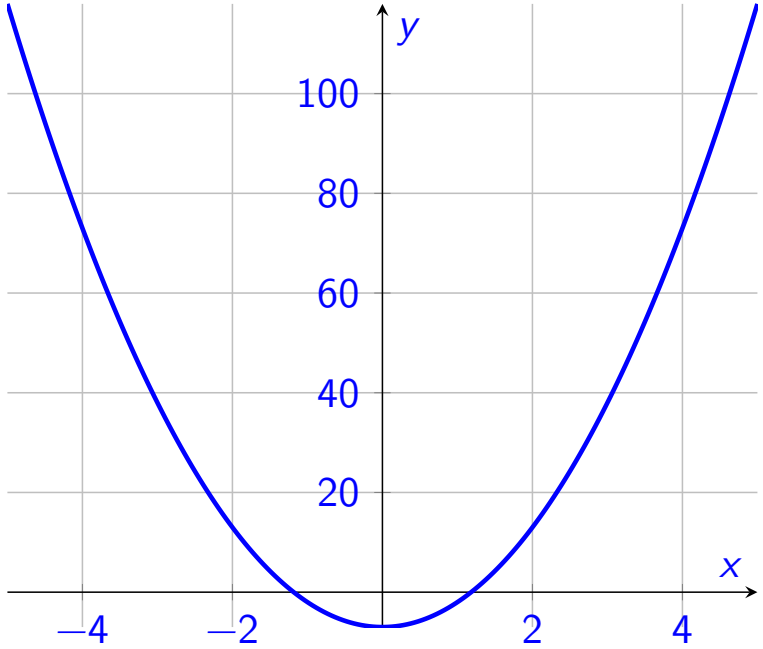
Exercise 1: $f_2(x) = \sqrt{(x+4)(3-x)}$ has $[-4, 3]$ as its domain.



Answers

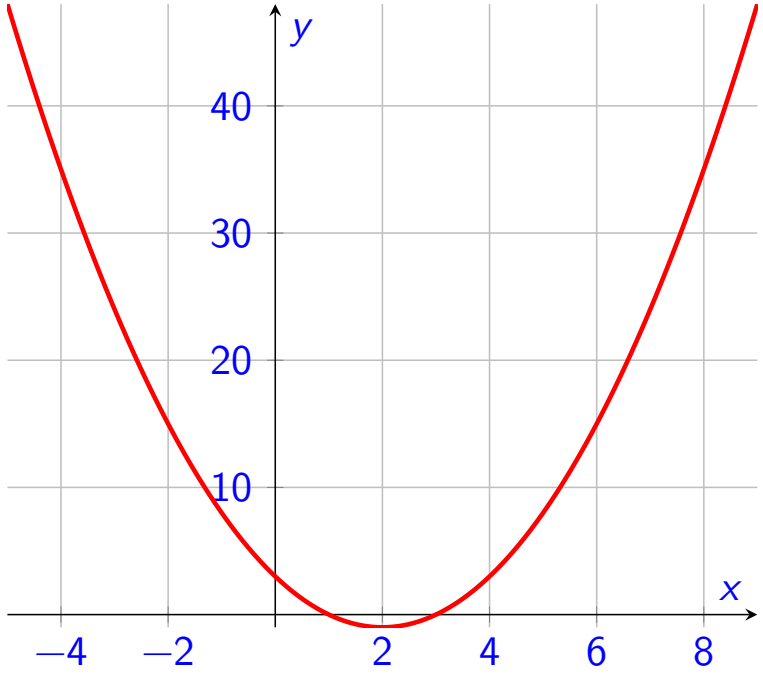
Exercises 2: Sketch the graphs of

(i) $y = 5x^2 - 7$



Answers

(ii) $y = x^2 - 4x + 3$



Answers

(iii) $y = x^3 - 6x^2 - 11x - 6$