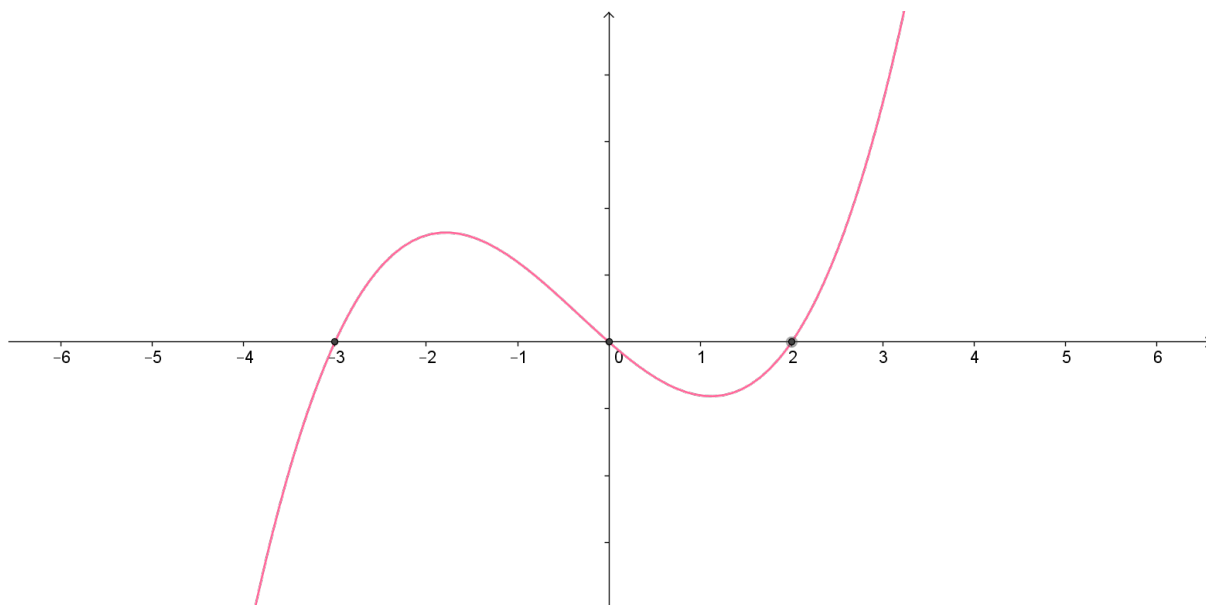


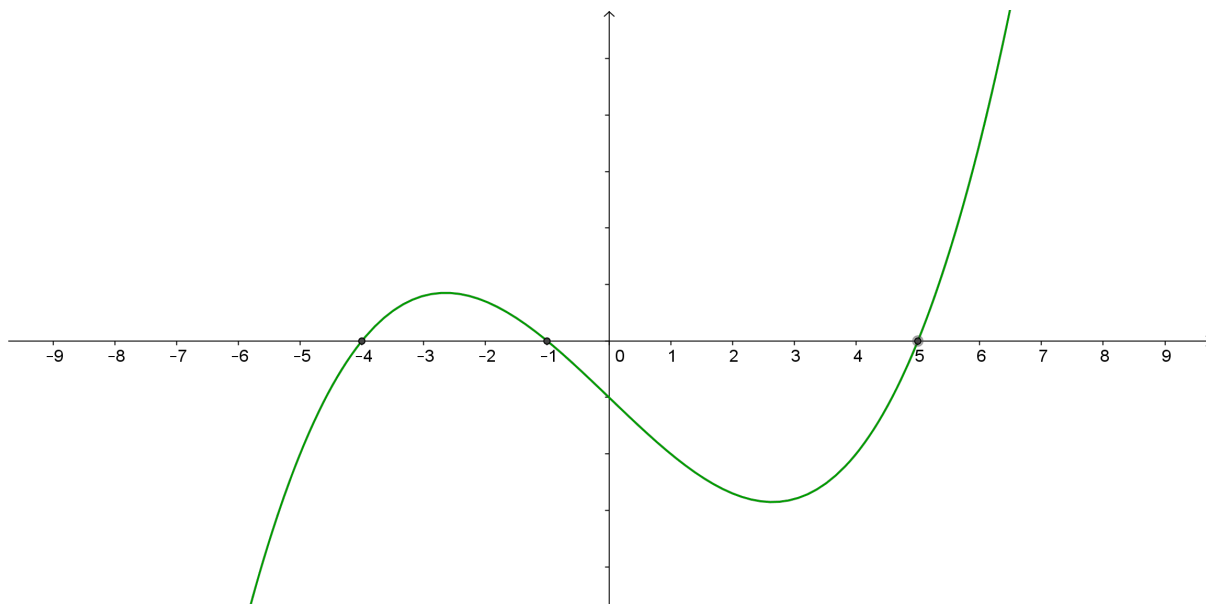
Algebraic Problems

1. The length of a rectangle is 3cm longer than its width. If its area is 28 cm^2 , what are the dimensions of the rectangle?
2. A field measures 20m x 30m. One day the farmer decides to move the perimeter fences outwards a distance x on each side; increasing the area from 600m^2 to 800m^2 . If the farmer moved each fence this distance, what is the value of x ?
3. Two consecutive positive even numbers are squared with the sum of the results equalling 100. What are the two numbers?
4. A ball is thrown vertically upwards with its height in meters after a certain time, t , given by the following equation
$$h = 14t - t^2$$
Find the two times when its height is equal to 48m.
What is the physical expectation for there being two solutions?
5. 270 tickets for a Heineken Cup game are divided between the members of the Munster Supporters Club. If the number of tickets each person got was 3 more than the amount of members, then how many members are there?
6. Given that $x = 2$ is a root, find the other two roots of the cubic equation
$$f(x) = 2x^3 + x^2 - 13x + 6$$
Hence draw a rough sketch.
7. The product of three consecutive even positive numbers is 48. Using x as the first number, solve for the three numbers using a cubic expression.
8. A large bag of potatoes in the milk market weighs 4 times as much as the small bag. Another option is the medium sized bag, which weighs 4.5 kg less than the large one. You get your hands on a weighing scale and find that 2 small bags and one large bag balance exactly with 3 medium bags.
 - i. How much does each bag weigh?
 - ii. If the large bag costs €10, the medium is €5.50 and the small is €2.25, which is the best value?

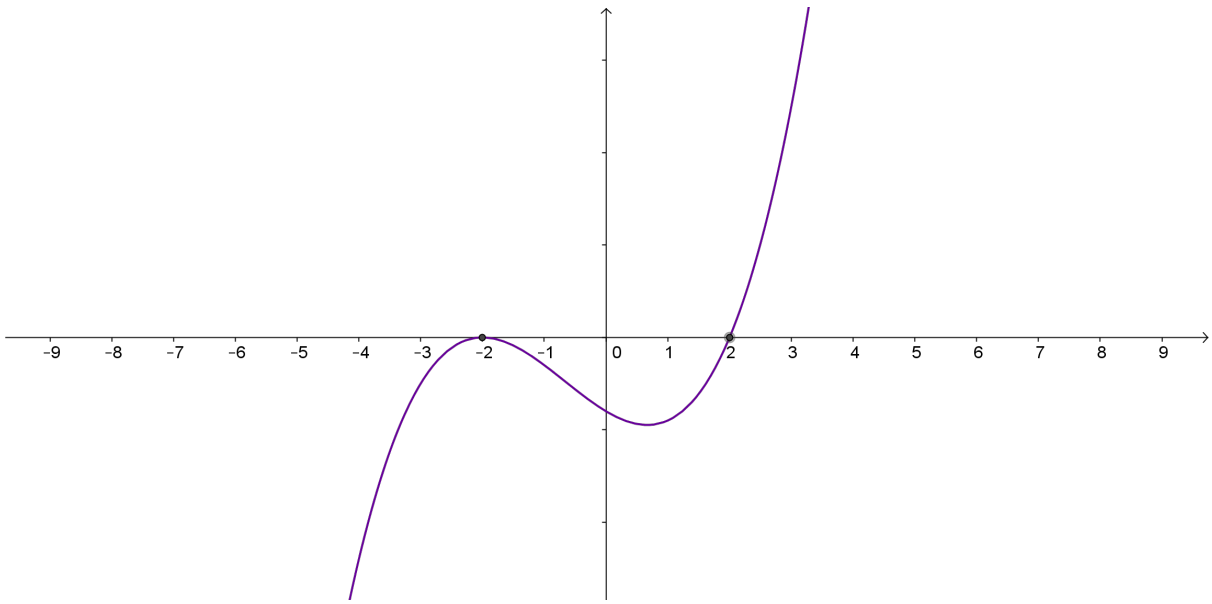
9. Express the following cubic functions in the form $f(x) = ax^3 + bx^2 + cx + d$



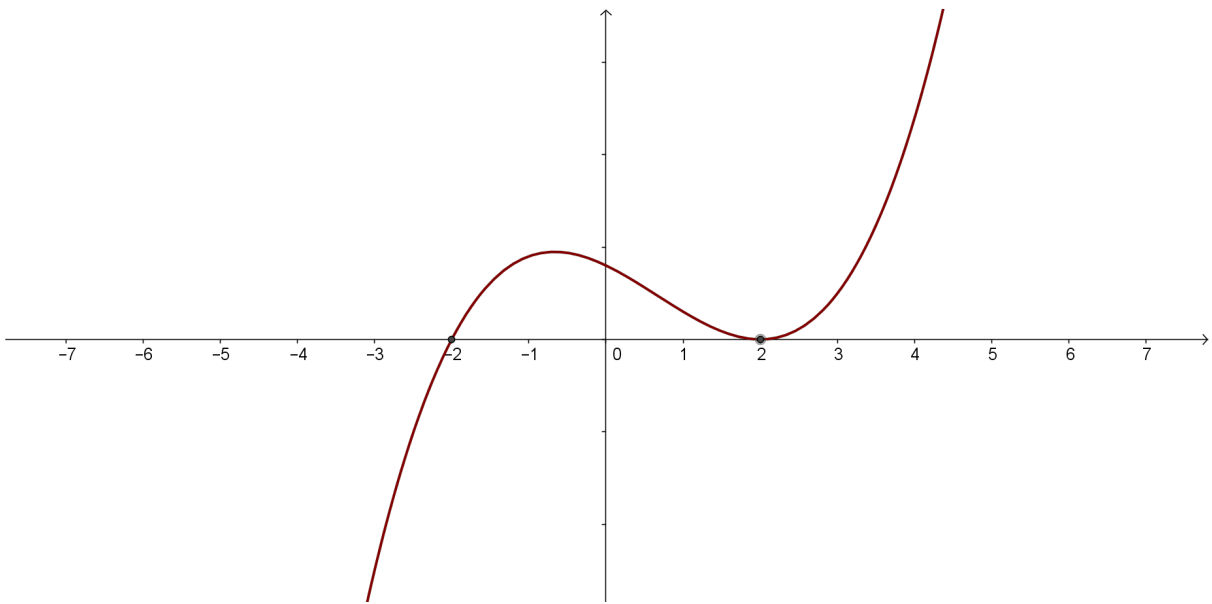
i.



ii.



iii.



iv.