

MATH 30 - Precalculus. Review for test 2. Professor Luis Fernández

Topics and skills that will be evaluated

Polynomial functions

- Quadratic functions:
 - Given a quadratic function of the form $f(x) = ax^2 + bx + c$, find the coordinates of the vertex, the x -intercepts if any, the y -intercept, whether the parabola opens up or down, and graph the function (Sec. 2.2).
 - Given a quadratic function of the form $f(x) = ax^2 + bx + c$, complete the square and write it in standard form (that is, as $a(x - h)^2 + k$) (Sec. 2.2).
 - Given a quadratic function in standard form, that is, as $f(x) = a(x - h)^2 + k$, find the coordinates of the vertex, the x -intercepts if any, the y -intercept, whether the parabola opens up or down, and graph the function (Sec. 2.2).
- For a polynomial function, find the end behaviour, the x -intercepts and the local behavior at the x -intercepts, the y -intercept, whether the function is even, odd, or neither, and sketch the graph (Sec. 2.3).
- Divide polynomials of any degree using long division (Sec. 2.4).
- Divide any polynomial by a binomial of the form $(x - c)$ using synthetic division (Sec. 2.4)
- Memorize and be able to use the Remainder Theorem and the Factor Theorem (Sec. 2.4).
- Use the Rational Zero Theorem to be able to find the possible rational zeros of a polynomial (Sec. 2.5).
- Find all the roots of a polynomial of any degree. Factor a polynomial of any degree (Sec. 2.5).

Angles and trigonometry

- Find the value of the trigonometric functions of any angle, with the angles written IN RADIANS (Sec. 4.4).

Some useful exercises from the textbook:

- Sec. 2.2: 17–37, odd numbered exercises.
- Sec. 2.3: 41–61, odd numbered exercises.
- Sec. 2.4: 1–13 odd numbered, 21–31 odd numbered, 35–45 odd numbered.
- Sec. 2.5: 1, 3, 5, 7, 11, 13, 25, 27, 29, 39–51 odd numbered.
- Sec. 4.4: 61–91, odd numbered.

Other materials:

- Besides the assignments I gave and the old tests that you can find in the webpage, here are some exercises from the textbook as a review.