1. **How many** (1 or 2) **and of what type** (complex, rational, or irrational) are the solutions to the quadratic equation:

   \[2x^2 - 5x = -4\]

2. Solve the following quadratic equation:

   \[2x^2 - 5x + 4 = 0\]
3. Solve the following equation that is quadratic in form by using a "u-substitution":

\[ 4x^4 - 29x^2 + 25 = 0 \]

4. Complete the square to convert the quadratic function that is in standard (descending order) form into vertex form, and then on the graph paper provided, accurately graph (including at least the vertex and the two pairs of symmetrical points discussed in class) the resultant (vertical) parabola, and finally give its domain and range (in the space provided below, [ \( D_f \) and \( R_f \) ]).

\[ f(x) = -2x^2 - 12x - 13 \]

\[ D_f: \]

\[ R_f: \]
5. The function \( h(t) = -16t^2 + 144t \) models the height (in feet) of a vertically (straight upwardly) thrown projectile, which is acted upon by gravity and was initially projected upwards at a velocity of \( 144 \text{ ft/sec} \).

By whichever means you wish, find the time at which the projectile reaches its maximum height, and what that maximum height is. Don’t forget the units in your summary statement. May I suggest that you find the vertex and not make this harder than it is.