4) Let \( g(x) \) be the rational function defined by: 
\[
g(x) = \frac{2x^3 + x^2 - 22x + 24}{x^2 - x - 2}
\]
Use your graphing calculator with the following window settings: 
\( X: [-10,10,1] \) & \( Y: [-50,50,10] \) to get a good picture of \( g(x) \).

a) List all the DRV’s (domain restricted values) of \( g(x) \). (4 points)

b) In interval notation, state the domain of \( g(x) \). (3 points)

\[
D_x:
\]

c) Give all the x-intercepts (points on the graph of \( y = g(x) \) that lie on the x-axis) of \( g(x) \). (6 points)

d) Give the g(x)-intercept (the point on the graph of \( y = g(x) \) that lies on the y-axis; otherwise known as the y-intercept) of \( g(x) \). (3 points)

e) Identify the equation(s) of all vertical asymptotes of \( g(x) \) (if they exist). If they don’t apply to \( g(x) \), simply state so… (4 points)
f) Identify the ordered pair(s) of any “hole(s)” of \( g(x) \) [also referred to in class as “R.D.(s)” , or removable discontinuity(ies)] , in exact fractional (not rounded) form, (if they exist). If they don’t apply to \( g(x) \) simply state so… (4 points)

g) Identify the equation of a horizontal asymptote of \( g(x) \) (if it exists). If one doesn’t apply to \( g(x) \) , simply state so… (4 points)

h) Identify the equation of an oblique asymptote of \( g(x) \) (if it exists). If one doesn’t apply to \( g(x) \) , simply state so… (4 points)

j) Fill in the T-table below (7 points; 0.5 points for each cell in the T-table), rounding to the nearest hundredth, if necessary. (You may use the value command on your calculators, if you wish). Then, graph the rational function \( g(x) \) (10 points) (using all the points from the T-table, and all the intercepts, “holes”, and asymptotes [vertical, horizontal, &/or oblique] found in (parts c – h) that apply to \( g(x) \). Remember to boldly plot the points and to label the asymptotes, as shown in class) (so 17 points in total for this part (j))