§3.1 262:5-10, 23-30.
Graph and on the graph mark the x and y-intercepts. Label the degrees of the roots. No credit if the graph isn’t smooth.

1(2). \( y = x^3 - 9x \) There are two turning points.
roots: 
find key values at -4,-1,1,4:

\[
\begin{array}{c|c}
-4 & -324 \\
-3 & -27 \\
-2 & -8 \\
-1 & -1 \\
0 & 0 \\
1 & 8 \\
2 & 8 \\
3 & 27 \\
4 & 324
\end{array}
\]

2(2). \( y = (x - 1)(x - 4)^2 \) There are two turning points.
roots: 
find key values at 0,2,5:

\[
\begin{array}{c|c}
0 & 0 \\
1 & -3 \\
2 & 0 \\
3 & 36 \\
4 & 0 \\
5 & 36 \\
\end{array}
\]

§3.6 313:11-14, 33-46.
Graph. On the graph mark the x and y-intercepts. Mark the vertical and horizontal asymptotes with their equations \((y=a\) or \(x=a\)). Just writing "a" won’t do. Graphs must be smooth.

3(4). \( y = \frac{x-1}{x+1} \) One y-intercept; one x-intercept.
roots: 
vert. asym: 
leading term: 
hor. asym: 
chk for above 4 answers combined = 4

4(4). \( y = \frac{-1}{(x-2)^2} \) There is just one intercept.
roots: 
vert. asym: 
leading term: 
hor. asym: 
chk for above 4 answers combined = 5
find key values at 0,3:

\[
\begin{array}{c|c}
0 & -\frac{1}{4} \\
3 & \frac{1}{4} \\
\end{array}
\]

5(4). \( y = \frac{x}{(x+1)(x-3)} \) Two VAs, one HA. One intercept.
roots: 
vert. asym: 
leading term: 
hor. asym: 
chk for above 4 answers combined = 5

Check your graphs at https://www.desmos.com/calculator