Use long division to fully factor the following problems. Then make a sketch of the function.

1) $y=x^3+5x^2-2x-24$ and a given root is 2

2) $y=x^3+4x^2-31x-70$ and a given root is 5

3) $y = x^3 + x^2 - 30x - 72$ and a given root is -4

4) $y = x^3 + 12x^2 - 28x - 480$ and a given root is -8