Please do not write in the margins of the page! Show all of your work on this paper: you are being graded on your work. No other paper may be used during this quiz.

1) Divide, using long division: write your quotient and remainder in the spaces below.

$$\frac{8x^3 + 18x^2 + 21x + 18}{2x + 3}$$

Quotient: $4x^2 + 3x + 6$

Remainder: 0

divide here:

$$\begin{array}{r}
4x^2 + 3x + 6 \\
2x + 3) \overline{)8x^3 + 18x^2 + 21x + 18} \\
\underline{-8x^3 - 12x^2} \\
6x^2 + 21x \\
\underline{-6x^2 - 9x} \\
12x + 18 \\
\underline{-12x - 18} \\
0
\end{array}$$

2) Divide, using synthetic division: $\frac{x^4-3x^2-5x+2}{x-2}$

Quotient: $x^3 + 2x^2 + x - 3$

Remainder: -4

divide here:

3) Using the remainder theorem, without using either long division or synthetic division, find the remainder you would get dividing $x^{20} - 6x^{10} + 9$ by x - 1The remainder theorem says that the remainder when dividing p(x) by x-c is equal to

Here c=1, so the remainder will be $1^4 - 3(1^2) - 5(1) + 2 = 1 - 3 - 5 + 2 = -5$