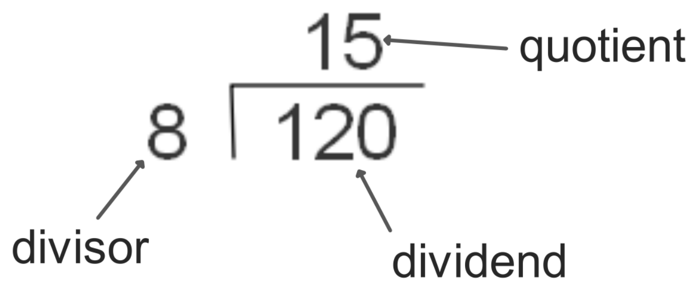
-1 and 2 are solutions of the equation below.

$$x^4 - x^3 + 2x^2 - 4x - 8 = 0$$

The other two solutions are imaginary.
How could you find the other two?

Divide this polynomial by the factors (x+1) and (x-2). This will leave you a Quadratic which you can then either factor or use Quadratic Formula to find the remaining two solutions.



Polynomial Long Division:

$$\frac{x^2 + 9x + 20}{x + 4} = x + 4 \,\overline{)\, x^2 + 9x + 20} \quad \boxed{= x + 5}$$

$x + 5$

$x + 4 \,\overline{)\, x^2 + 9x + 20}$

$- \; x^2 + 4x$

$5x + 20$

$- \; 5x + 20$

0

Find this quotient.

$$\frac{2x^3 - 7x^2 + x - 9}{x + 3} = \boxed{2x^2 - 13x + 40 \quad R = -129}$$

$2x^2 - 13x + 40$

$x + 3 \,\overline{)\, 2x^3 - 7x^2 + x - 9}$

$- \; 2x^3 + 6x^2$

$-13x^2 + x$

$- \; -13x^2 - 39x$

$+40x - 9$

$- \; 40x + 120$

-129

Ways to leave a remainder.

$$\frac{2x^3-7x^2+x-9}{x+3} = \boxed{2x^2-13x+40 \qquad R=-129}$$

$$\frac{2x^3-7x^2+x-9}{x+3} = \boxed{2x^2-13x+40-\frac{129}{x+3}}$$

Find this quotient.

$$\frac{4x^3+2x^2-15x-17}{x-9} = \boxed{4x^2+38x+327 \quad R=2926}$$

$$\begin{array}{r l}
 & 4x^2+38x+327 \\
(x-9) & \overline{)\,4x^3+2x^2-15x-17} \\
- & 4x^3-36x^2 \\
\hline
 & 38x^2-15x \\
- & 38x^2-342x \\
\hline
 & 327x-17 \\
- & 327x-2943 \\
\hline
 & 2926
\end{array}$$

Find this quotient.

$$\frac{2x^3+x^2-19x+10}{2x-5} = \boxed{x^2+3x-2}$$

$$\begin{array}{r l}
 & x^2+3x-2 \\
2x-5 & \overline{)\,2x^3+x^2-19x+10} \\
- & 2x^3-5x^2 \\
\hline
 & +6x^2-19x \\
- & 6x^2-15x \\
\hline
 & -4x+10 \\
 & -4x+10 \\
\hline
 & 0
\end{array}$$

Find this quotient.

$$\frac{2x^3-7x+8}{x-3} = \boxed{2x^2+6x+11 \quad R=41}$$

$$\begin{array}{r l}
 & 2x^2+6x+11 \\
x-3 & \overline{)\,2x^3+0x^2-7x+8} \\
- & 2x^3-6x^2 \\
\hline
 & 6x^2-7x \\
- & 6x^2-18x \\
\hline
 & 11x+8 \\
- & 11x-33 \\
\hline
 & 41
\end{array}$$