Is $x - 2$ a factor of $x^5 - 32$?

If it is, write $P(x)$ as a product of two factors.

$(2)^5 - 32 = 0$

X-2 is a factor

2 is a root

2	1	0	0	0	0	-32
	↓	2	4	8	16	32
	1	2	4	8	16	0

$(x-2)(x^4+2x^3+4x^2+8x+16)$

Use the Factor Theorem to Solve

Solve the equation $2x^3 - 3x^2 - 11x + 6 = 0$ given that 3 is a zero of the function.

x-3 is a factor

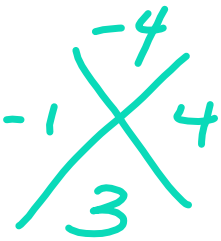
3 | 2 -3 -11 6

	6	9	-6
2	3	-2	0

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

Roots: $3, \frac{1}{2}, -2$

$(2x^2+4x)(-x-2)=0$



$2x(x+2)-1(x+2)$

$(2x-1)(x+2)$

$x=\frac{1}{2}, -2$

Solve

$15x^3 + 14x^2 - 3x - 2 = 0$ given that -1 is a zero of the function.

$$\begin{array}{r|cccc} -1 & 15 & 14 & -3 & -2 \\ & \downarrow & -15 & 1 & 2 \\ \hline & 15 & -1 & -2 & 0 \end{array}$$

$x = -1, \frac{2}{5}, \frac{-1}{3}$

Solve

$$f(x) = 3x^3 + 4x^2 + x$$

$$x(3x^2+4x+1)=0$$

$$x((3x^2+x)(+3x+1))$$

3, 1, 3, 4

$$x(x(3x+1)\ \ (3x+1))$$

$$x((x+1)(3x+1))=0$$

$$x=0 \quad x+1=0 \quad 3x+1=0$$

$$x=0, -1, -\frac{1}{3}$$