Find the polynomial function with leading coefficient 3 that has the given degree and zeros

Degree 3, with zeros -5, -2, 3

$$x = -5 \quad x = -2 \quad x = 3$$
$$y = 3(x+5)(x+2)(x-3)$$
$$3(x+5)(x^2-x-6)$$
$$\begin{array}{l} x^3-x^2-6x \\ \underline{5x^2-5x-30} \end{array}$$
$$3(x^3+4x^2-11x-30)$$
$$y = 3x^3+12x^2-33x-90$$

Degree 3, with zeros -1, 1, 6

$$x = -1 \quad x = 1 \quad x = 6$$
$$y = 3(x+1)(x-1)(x-6)$$
$$= 3(x^2-1)(x-6)$$
$$3(x^3-6x^2-x+6)$$
$$y = 3x^3-18x^2-3x+18$$

Degree of 3, with zeros 4, 1/2, 3/2

$$x = \frac{1}{2} \quad 2x-1=0$$
$$2x=1$$
$$x = 4 \quad x = \frac{1}{2} \quad x = \frac{3}{2}$$
$$(x-4)(2x-1)(2x-3)$$
$$(x-4)(4x^2-8x+3)$$
$$\begin{array}{l} 4x^3-8x^2+3x \\ \underline{-16x^2+32x-12} \end{array}$$
$$\frac{3}{4}\left(4x^3-24x^2+35x-12\right)$$
$$3x^3-18x^2+\frac{105}{4}x-9$$

Degree 4, with zeros -2, 0, 1, 5/2

$$x = -2 \quad x = 0 \quad x = 1 \quad x = \frac{5}{2}$$
$$x(x+2)(x-1)(2x-5)$$
$$(x^2+2x)(2x^2-7x+5)$$
$$\begin{array}{l} 2x^4-7x^3+5x^2 \\ \underline{4x^3-14x^2+10x} \end{array}$$
$$\frac{3}{2}\left(2x^4-3x^3-9x^2+10x\right)$$
$$3x^4-\frac{9}{2}x^3-\frac{27}{2}x^2+15x$$

Using only algebraic methods, find the cubic function with the given ~~talbe~~ table of values

table

$(-3,0)$ $(-1,0)$ $(0,18)$ $(3,0)$

X	-3	-1	0	3
f(x)	0	0	18	0

$x=-3$ $x=-1$ $x=3$

$y=a(x+3)(x+1)(x-3)$ $y=-2(x+3)(x+1)(x-3)$

$18=a(-9)$

$a=-2$

X	-4	-2	0	1
f(x)	0	0	-32	0