

$$\textcircled{1} a) (x-3)(x-3)(x-1)$$

$$(x^2-3x-3x+9)(x-1)$$

$$(x^2-6x+9)(x-1)$$

$$\begin{array}{r} x^3-6x^2+9x \\ + \quad -x^2+6x+9 \\ \hline \end{array}$$

$$\boxed{x^3-7x^2+15x-9}$$

b) Cubic c) Polynomial of 4 terms

d) x^3 a+, nodd $\uparrow \downarrow$

$$\textcircled{2} a) -x^2(x+2)(x+2)$$

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

$$-x^4-2x^3-2x^3-4x^2$$

$$\boxed{-x^4-4x^3-4x^2}$$

b) Quartic c) Trinomial

d) $-x^4$ a-, never $\uparrow \downarrow$

$$\textcircled{4} x^2(x^4-16)$$

$$\boxed{x^6-16x^2}$$

b) 6th degree polynomial

c) binomial

d) x^6 a+, never $\uparrow \downarrow$

$$\textcircled{3} a) (x^2+5)(-2x^3+3x-1)$$

$$\begin{array}{r} -2x^5+3x^3-x^2 \\ + \quad -10x^3 \quad +15x-5 \\ \hline \end{array}$$

$$\boxed{-2x^5-7x^3-x^2+15x-5}$$

b) Quintic c) Polynomial of 5 Terms

d) $-2x^5$ a-, nodd $\uparrow \downarrow$

$$\textcircled{5} 10x^3-3x$$

$$x(10x^2-3)$$

$\frac{-30}{0}$
NOT FACTORABLE

$$\boxed{x(10x^2-3)}$$

$$\textcircled{6} 3x^2y-9xy^4$$

$$3xy(x-3y^3)$$

$$\textcircled{7} 2x^2y+4x^4y+6x^6y$$

$$2x^2y(1+2x^2+3x^4)$$

$$\boxed{2x^2y(3x^4+2x^2+1)}$$

$$\textcircled{8} 3x^4-18x^3+24x^2$$

$$3x^2(x^2-6x+8)$$

$$\frac{8}{-2} \quad \frac{-4}{-6}$$

$$\boxed{3x^2(x-2)(x-4)}$$

$$\textcircled{9} x^3-9x$$

$$x(x^2-9)$$

$$\frac{-9}{3} \quad \frac{-3}{0}$$

$$\boxed{x(x-3)(x+3)}$$

$$\textcircled{10} 12w^3-64w^2+80$$

$$\boxed{4(3w^3-16w^2+20)}$$

$$\textcircled{11} y = -(2x+6)(x-2)(x+6)(x-4)$$

$$-(2x+6)(x-2)(x+6)(x-4) = 0$$

$$\begin{array}{cccc} -(2x+6)=0 & x-2=0 & x+6=0 & x-4=0 \\ -1 & x=2 & x=-6 & x=4 \end{array}$$

$$2x+6=0$$

$$2x=-6$$

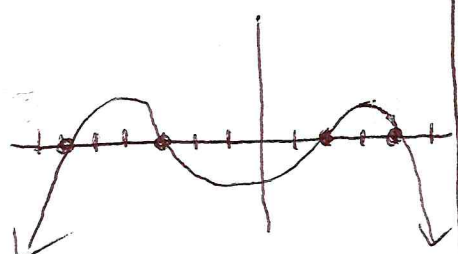
$$x=-3$$

EB:

$$y = -2x^4$$

a-, never

$\uparrow \downarrow$



$$\textcircled{12} y = -x(x-2)(x+5)$$

$$-x(x-2)(x+5) = 0$$

$$\begin{array}{ccc} -x=0 & x-2=0 & x+5=0 \\ x=0 & x=2 & x=-5 \end{array}$$

EB:

$$y = -x^3$$

a-, nodd

$\uparrow \downarrow$

