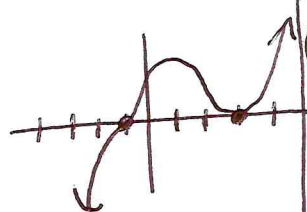
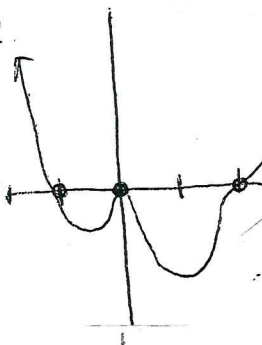


13) $y = (x-3)^2(x+1)^3$
 $(x-3)^2(x+1)^3 = 0$
 $(x-3)^2 = 0 \quad (x+1)^3 = 0$
 $\sqrt{\quad} \quad \sqrt{\quad} \quad \sqrt[3]{\quad} \quad \sqrt[3]{\quad}$
 $x-3=0 \quad x+1=0$
 $x=3 \quad x=-1$
multiplicity of 2 multiplicity of 3



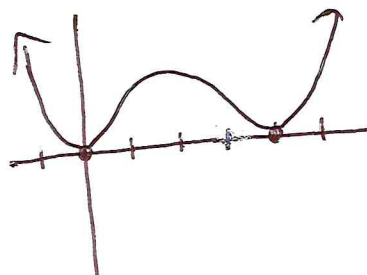
EB: $y = x^5$ at, nodd $\nwarrow \nearrow$

15) $y = x^2(x+1)(x-2)^3$
 $x^2(x+1)(x-2)^3 = 0$
 $x^2=0 \quad x+1=0 \quad (x-2)^3=0$
 $x=0 \quad x=-1 \quad x-2=0$
multiplicity of 2 multiplicity of 3



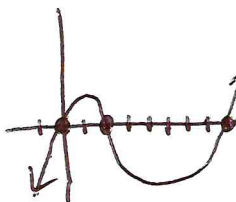
EB: x^6 at, nodd $\nwarrow \nearrow$

16) $x^4 - 8x^3 + 16x^2 = 0$
 $x^2(x^2 - 8x + 16) = 0$
 $x^2(x-4)^2 = 0$
 $\cancel{16} \quad \cancel{4} \quad \cancel{-8}$
 $x^2=0 \quad (x-4)^2=0$
 $x=0 \quad x-4=0$
both have multiplicity of 2



EB: $y = x^4$ at, nodd $\nwarrow \nearrow$

17) $x^3 - 6x^2 - 16x = 0$
 $x(x^2 - 6x - 16) = 0$
 $x(x-8)(x+2) = 0$
 $x=0 \quad x-8=0 \quad x+2=0$
 $x=8 \quad x=-2$



EB: $y = x^3$ at, nodd $\nwarrow \nearrow$

18) a) $x+5 \overline{) x^2 - 3x - 40}$
 $\underline{-x^2 + 5x}$
 $8x - 40$
 $\underline{-8x + 40}$
 0
 $x+5$ is a factor of $x^2 - 3x - 40$
b) FF: $x-8$
c) PF: $(x+5)(x-8)$

19) $x+4 \overline{) 3x^2 + 7x - 20}$
 $\underline{-3x^2 + 12x}$
 $-5x - 20$
 $\underline{-5x - 20}$
 0
 $x+4$ is a factor of $3x^2 + 7x - 20$
b) FF: $3x-5$
c) PF: $(x+4)(3x-5)$

20) $x-1 \overline{) x^3 + 3x^2 - x + 2}$
 $\underline{-x^3 + x^2}$
 $4x^2 - x$
 $\underline{-4x^2 + 4x}$
 $3x + 2$
 $\underline{-3x + 3}$
 5
 $x-1$ is not a factor of $x^3 + 3x^2 - x + 2$
b) FF: $x^2 + 4x + 3 + \frac{5}{x-1}$
c) PF: $(x-1)(x^2 + 4x + 3) + 5$

21) $3x+1 \overline{) 9x^3 - 18x^2 - x + 2}$
 $\underline{-9x^3 + 3x^2}$
 $-21x^2 - x$
 $\underline{-21x^2 + 7x}$
 $-8x + 2$
 $\underline{-6x + 2}$
 0
 $3x+1$ is a factor of $9x^3 - 18x^2 - x + 2$
FF: $3x^2 - 7x + 2$ PF: $(3x+1)(3x^2 - 7x + 2)$