Week 1 questions Ex1 Find the domain of the pollowing functions ay Pn(1-uss2x). c) arcsin(sinh(x))by $\frac{2x}{x+1}$ d) Vtanx-1. Ex2 Determine the pairity (odd-even) of following functions $y = \sin(\sin x)$ c) $\sinh^{-1}(x)$

by y = tan (was ac) dy artsin (sin ac)) Ex3 Study the jollowing punctions

or y = arcsin x + arcusx

by y = arcsin(sin x)c) y = arcus (usx)

d) y = are tan (tanz)

e) y = artan x - arcust 1/2.

Hints: Domain? Range? Pairity? Periodicity?

Boundedner? Graph?

Ex4 Compute the limits (if exists) d) lim (05 (7111) e) lim (N2 (TIN)) b) lim (n² cos (nπ)) f) lim n2+1055(71n). Remark Given a sequence un., the case lim un=+00 is different to the case lim un does not exist. Ex 5 Show that lim cos(n) does not exist Ex 6 (hard) ay Show that $sin(x) + sin(\pi x)$ is not periodic

b) Show that A sin (mx) + B sin (nx), A,B ER
m,n & Z is periodic. Compute the smallest period.