# Fall 2018 - Quiz 1 <br> ECE 301: Signals and Systems 

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## Problem 1

For the signals in figure 1 sketch the even and odd parts.


Figure 1: Problem 1

## Problem 2

For the following questions, determine if the signals are periodic or not. If periodic, find their fundamental period.

```
a . Even{| sin (2\pit)u(t)|}
b . Odd {| \operatorname{sin}(2\pit)u(t)|}
c. }\operatorname{sin}(\frac{n}{8}-7
d. }\operatorname{cos}(\frac{\pi}{4}n+1)+\operatorname{sin}(\frac{\pi}{8}n+3)-2\operatorname{cos}(\frac{\pi}{6}n+\frac{\pi}{6}
```


## Problem 3

Consider a Discrete Time signal $e^{j \omega_{0} n}$
a . Which is a higher frequency? $\omega_{0}=\frac{\pi}{4}$ or $\omega_{0}=\frac{\pi}{2}$. What is the fundamental frequency in both the cases?
b . What value of $\omega_{0}$ gives the highest frequency? Sketch the corresponding signal.
c . If $\omega_{0}=2$, is this signal periodic? If yes, find the fundamental period. If no, justify your answer.

