

II. Vlny

1. Harmonické vlny v 1dm

1.1. Základní vlastnosti harmonické vlny

1.2. Princip superpozice

1.3. Interference vln

1.4. Grupová rychlost

1.5. Vlnová rovnice

1.6. Matematická poznámka

2. Harmonické vlny ve 3dm

2.1. Rovinná vlna

2.2. Kulová vlna

2.3. Vlnová rovnice

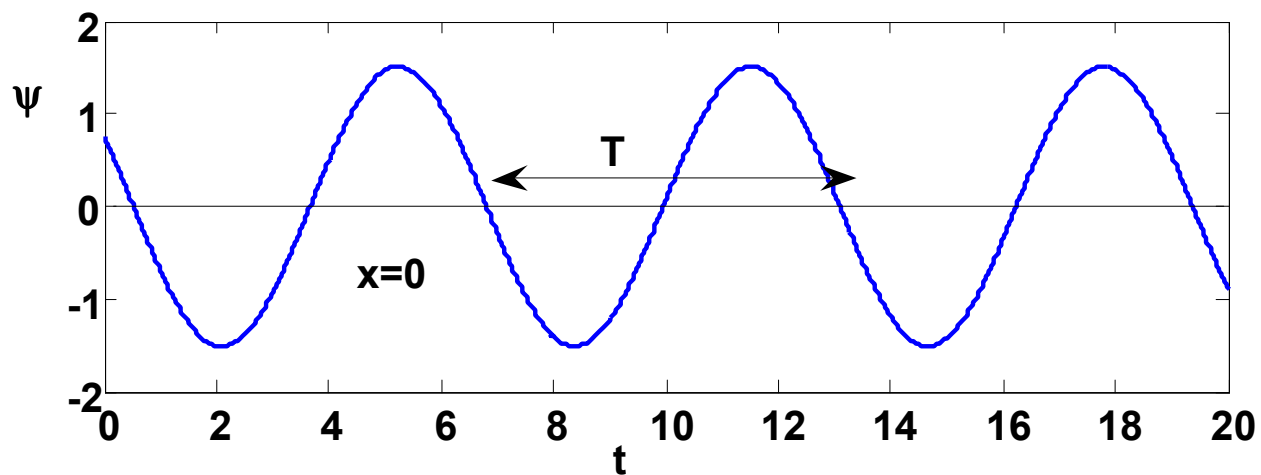
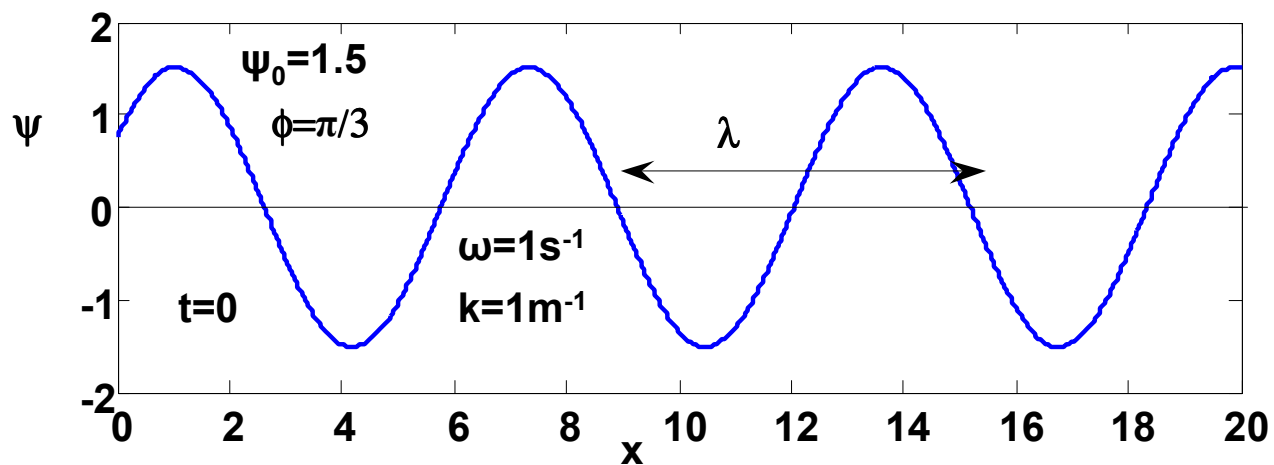
3. Obecná vlna

3.1. Příklady složitějších vln

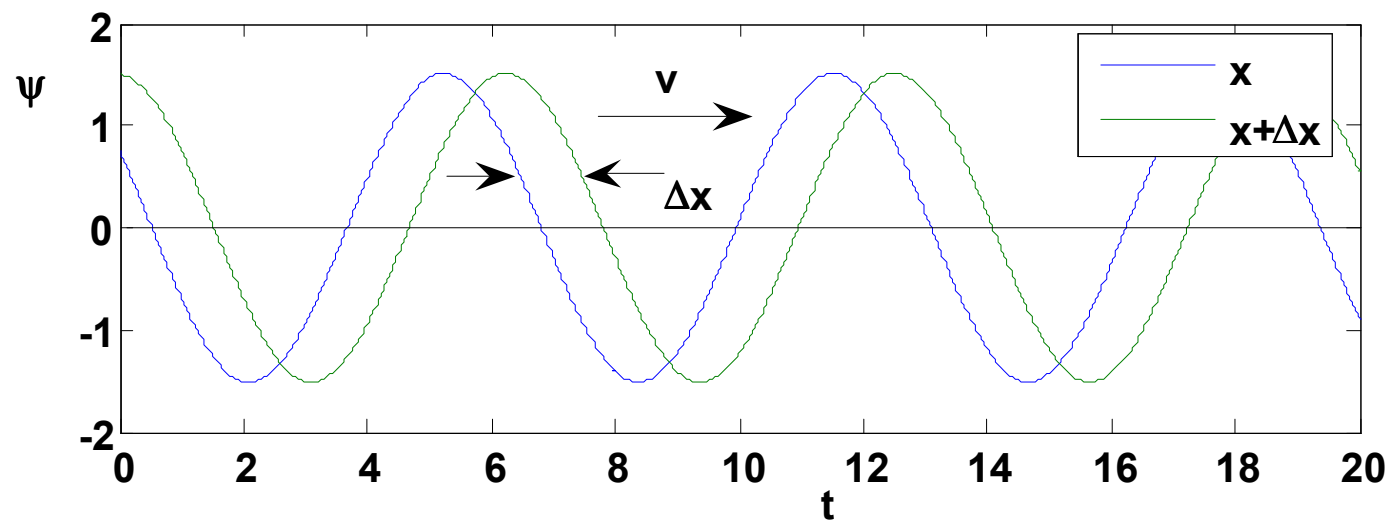
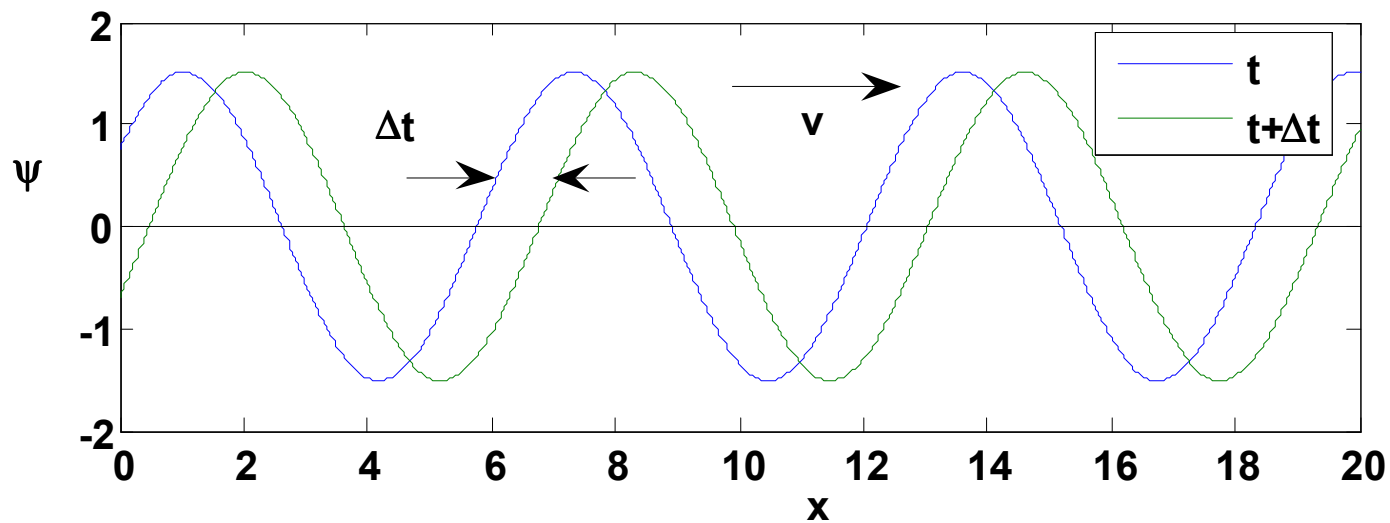
3.2. Periodická funkce

3.3. Neperiodické funkce

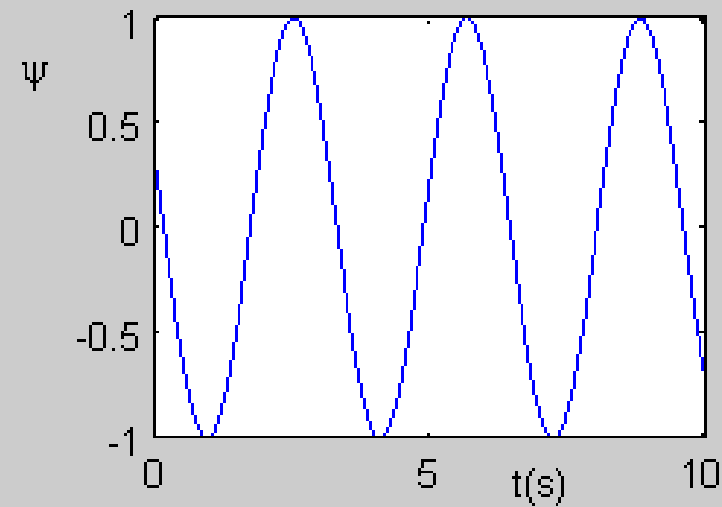
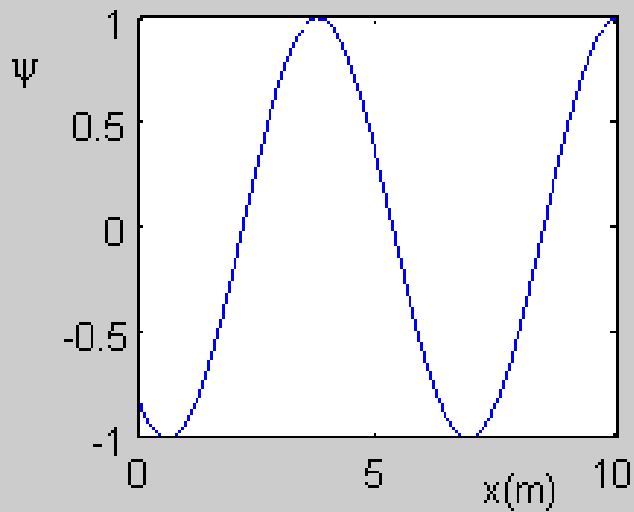
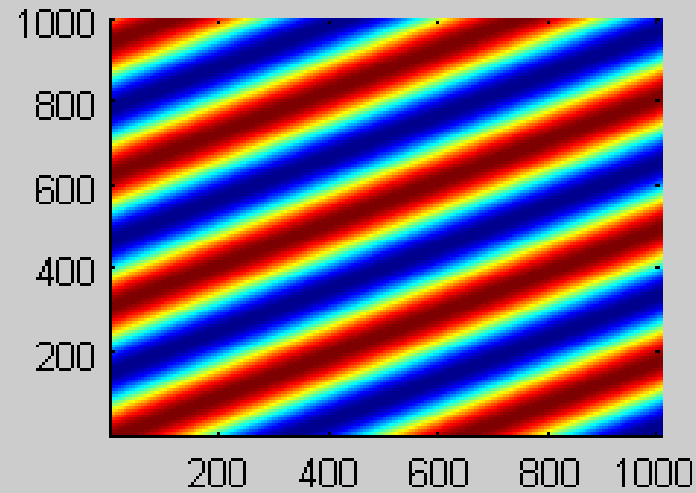
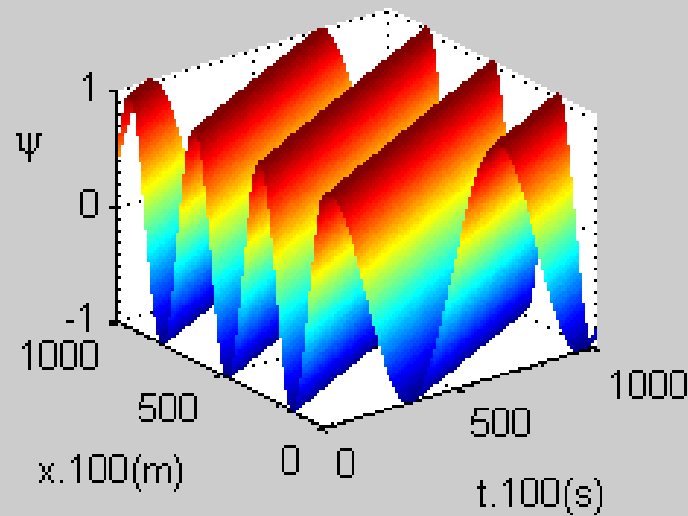
3.4. Vlnové klubko v čase a prostoru



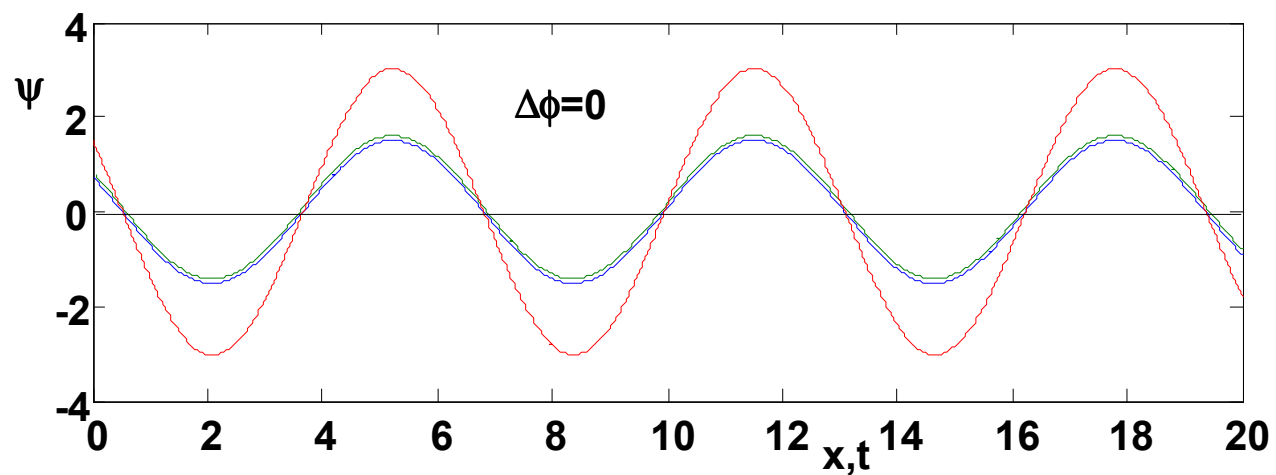
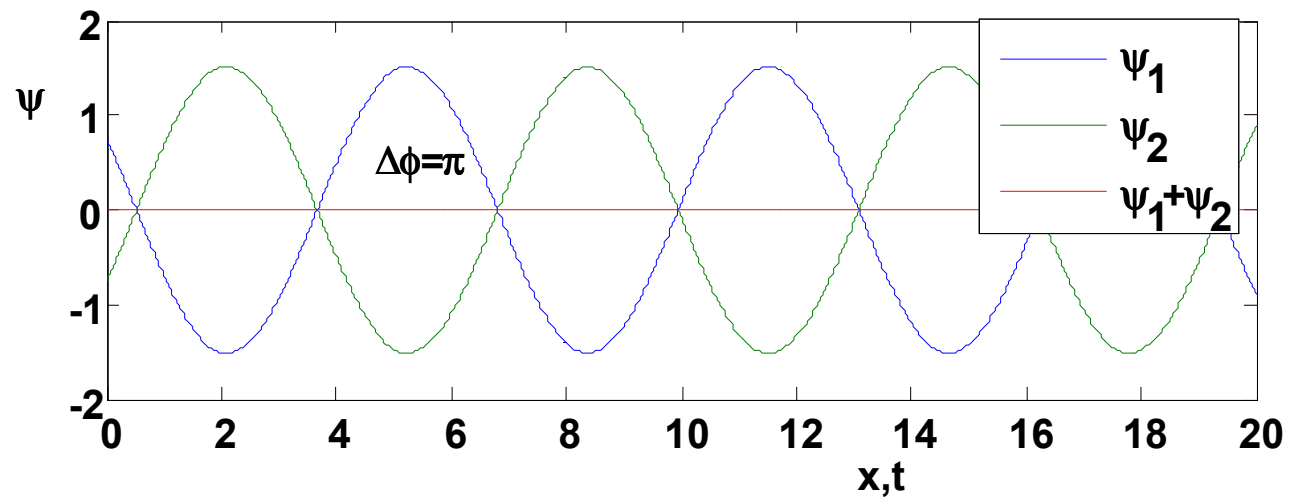
Harmonická vlna, prostorová a časová závislost.



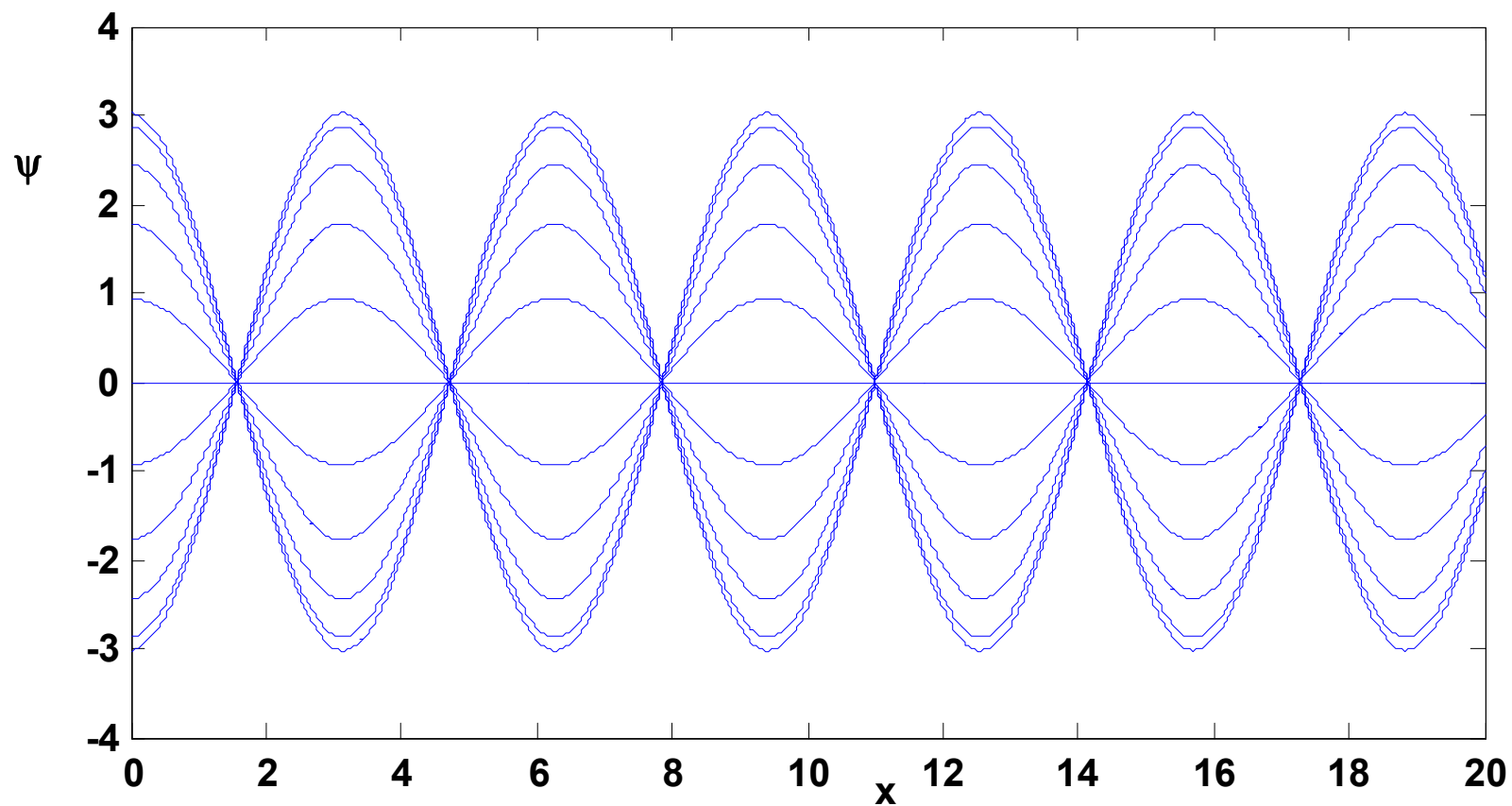
Posuv harmonické vlny v prostoru a čase.



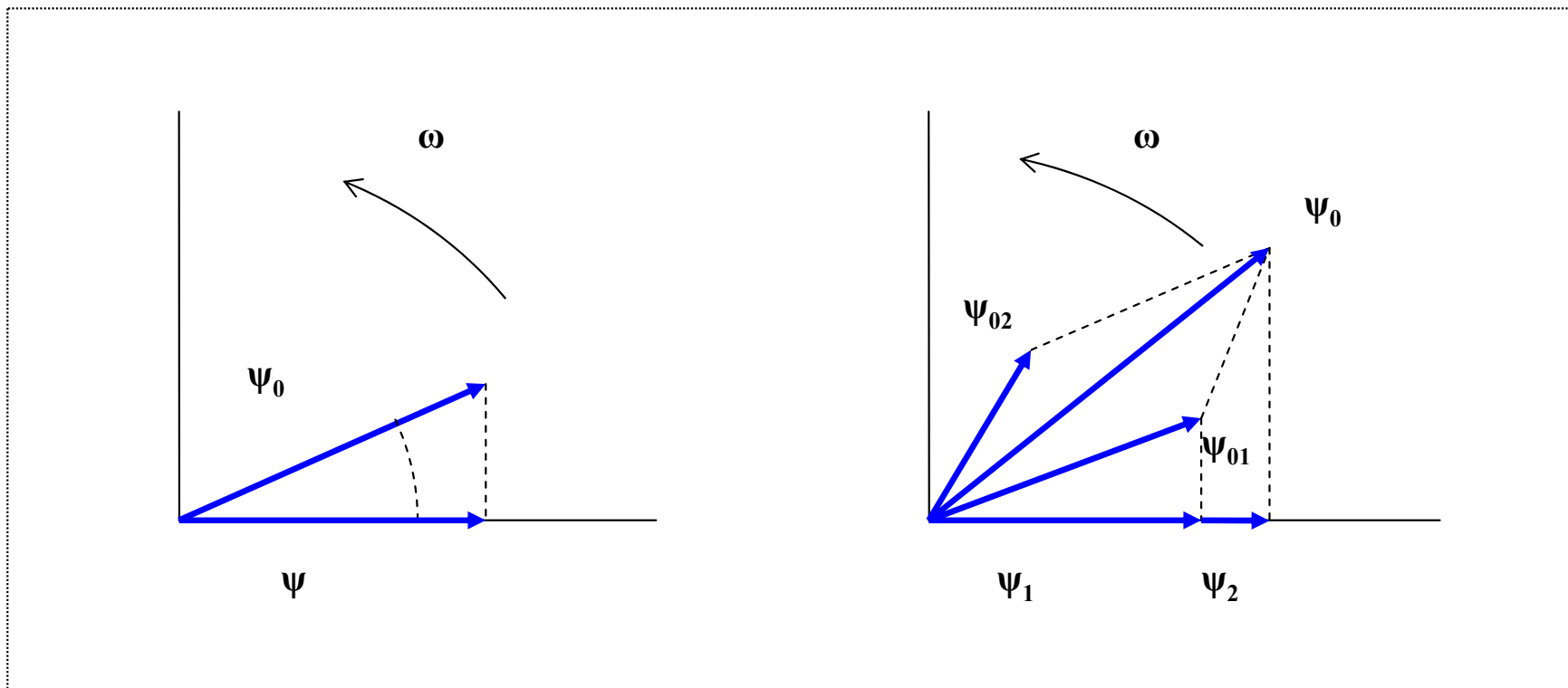
***Zobrazení harmonické vlny v časoprostoru
(osy horních obrázků jsou stejné,
spodní obrázky jsou řezy v polovině stupnice).***



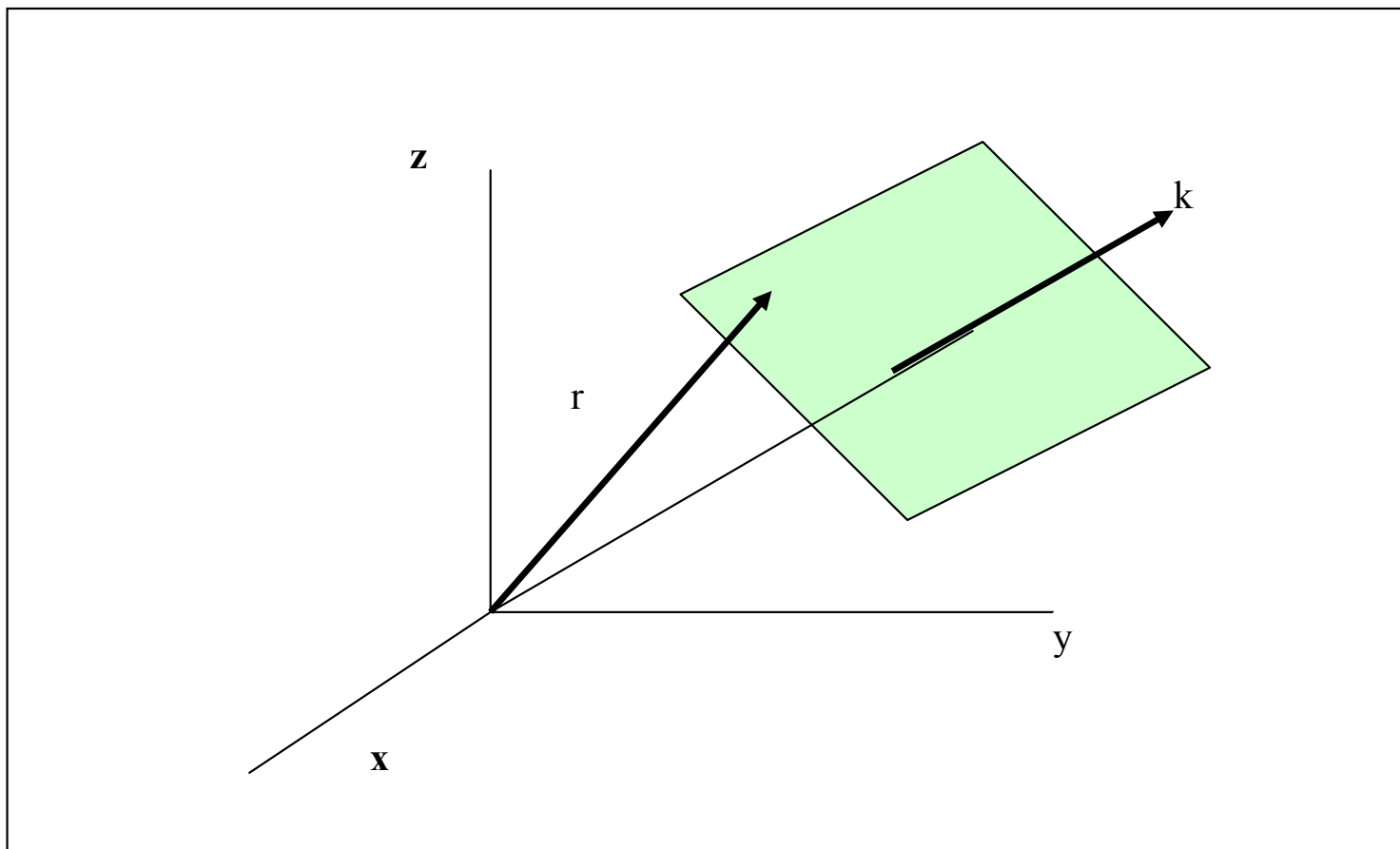
Destruktivní a konstruktivní interference.



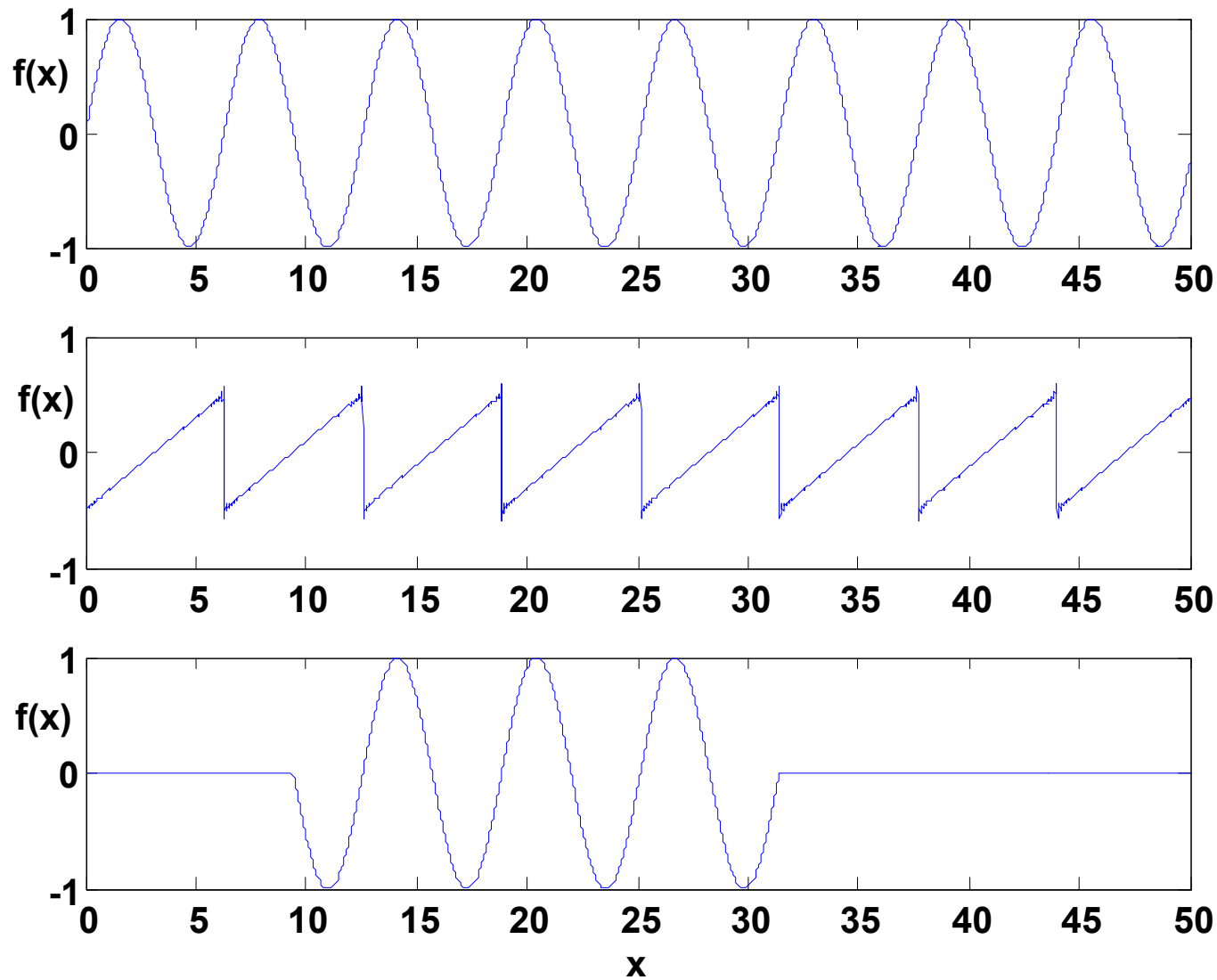
Stojaté vlnění v prostoru pro různé časové okamžiky



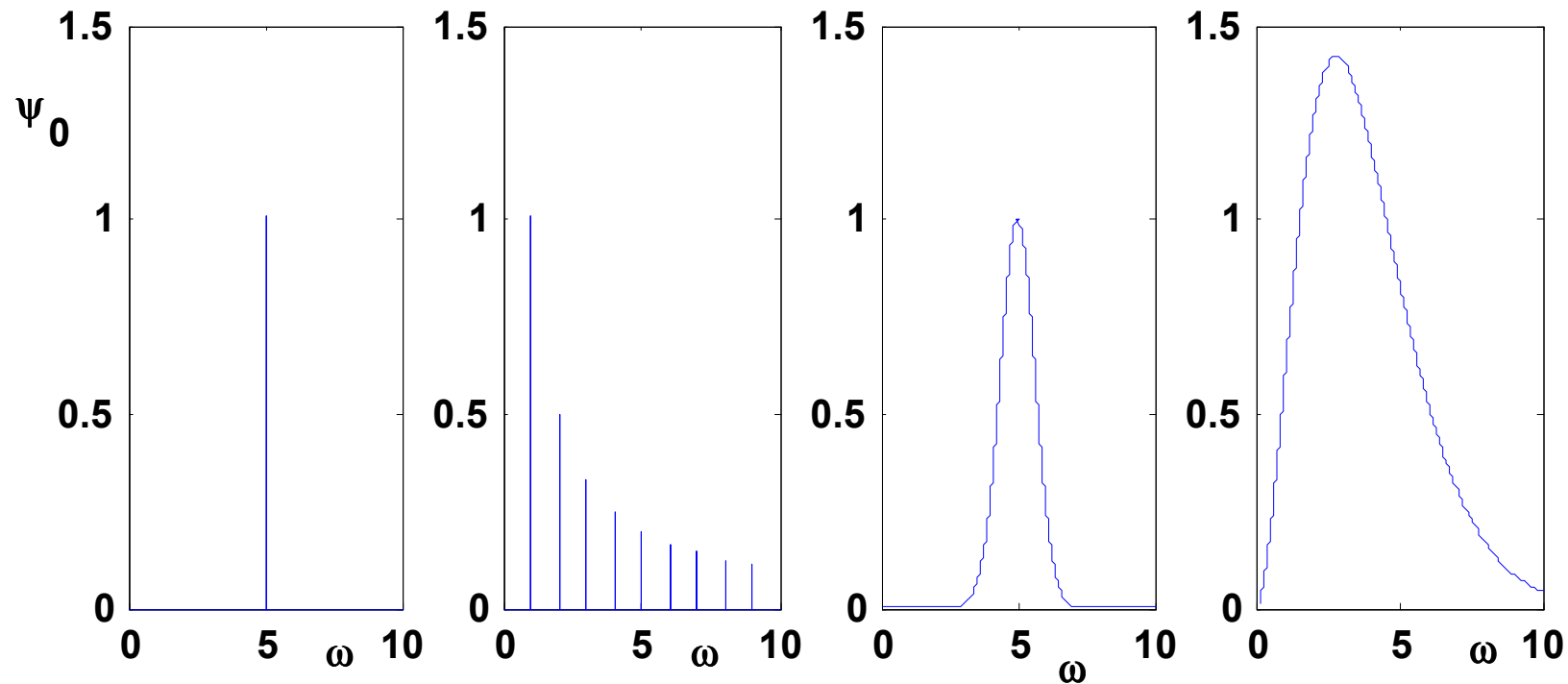
Fázor harmonické vlny a jejich sečítání.



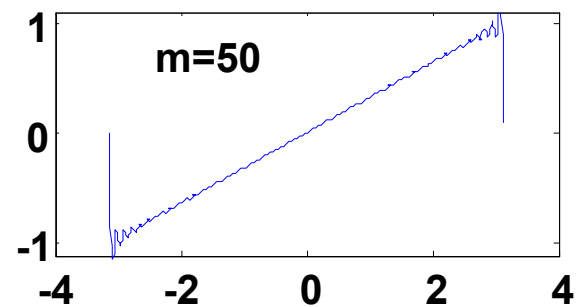
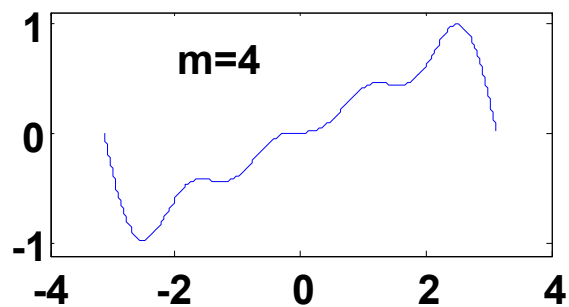
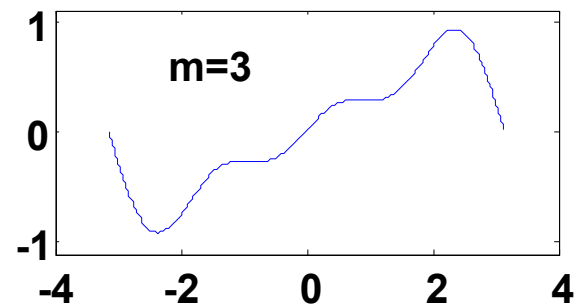
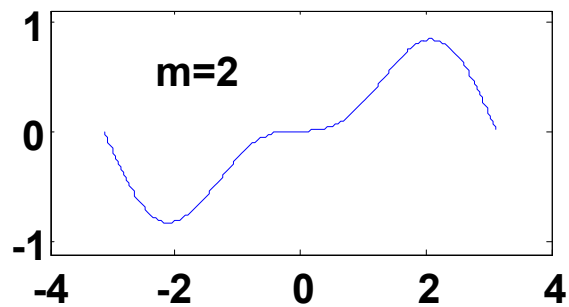
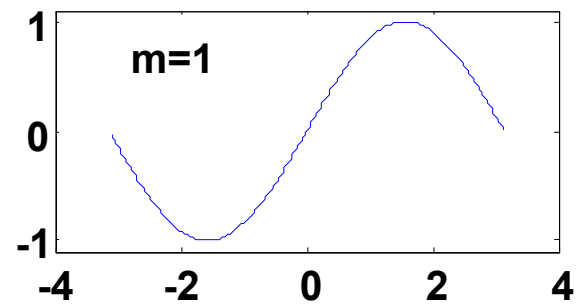
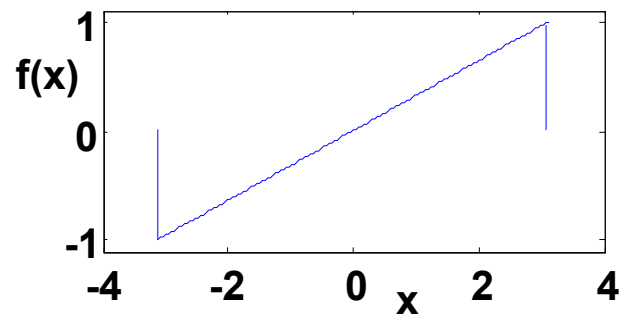
Rovinná vlna.



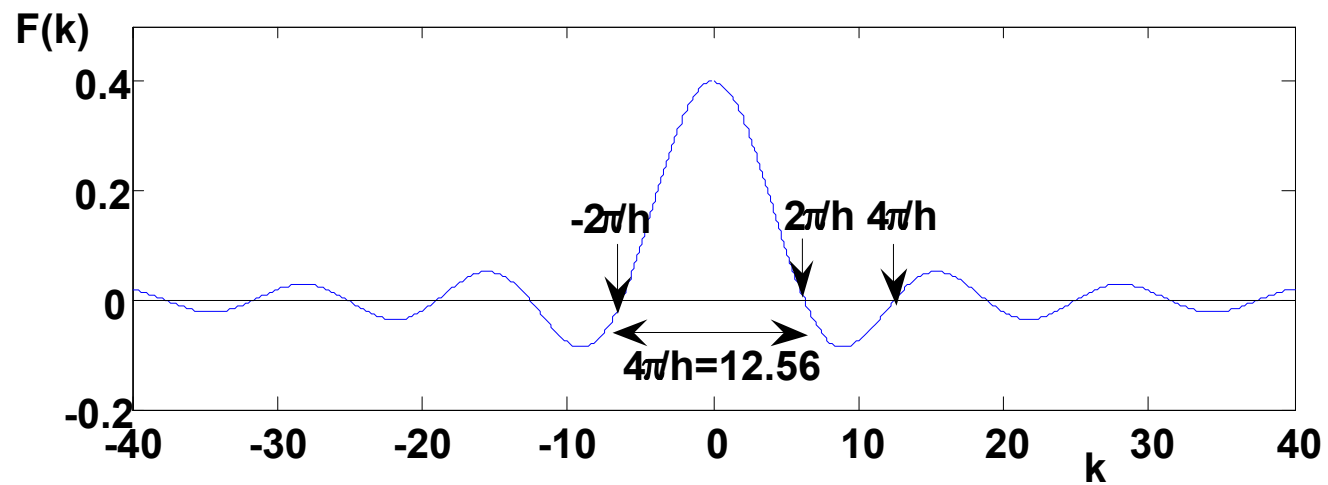
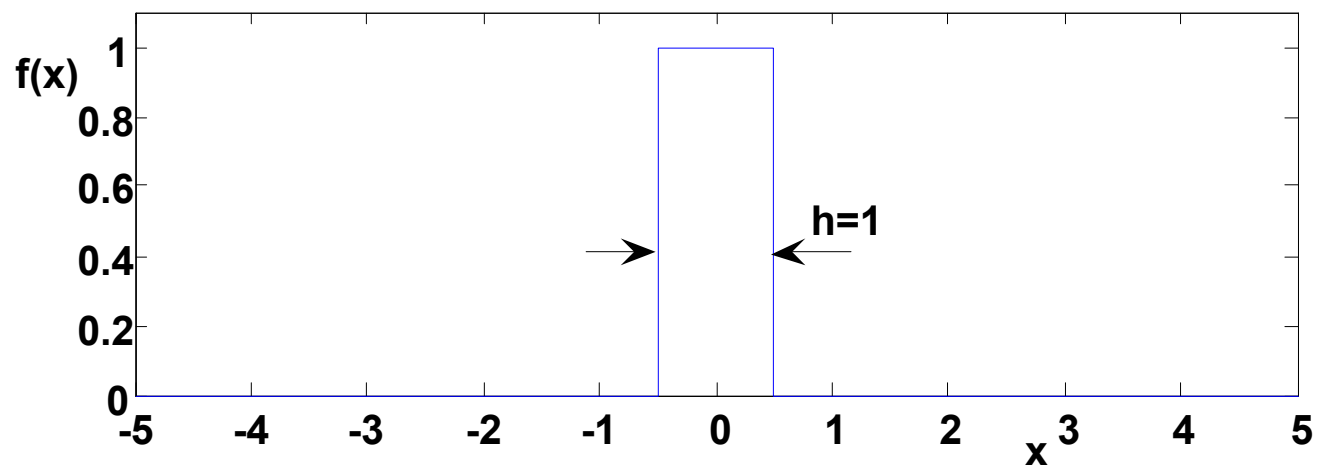
***Příklady harmonické funkce, neharmonické (pilové kmity),
neharmonické – omezené v prostoru***



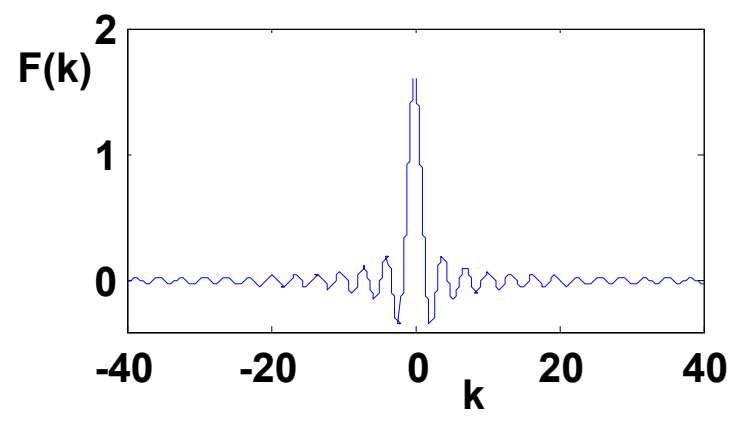
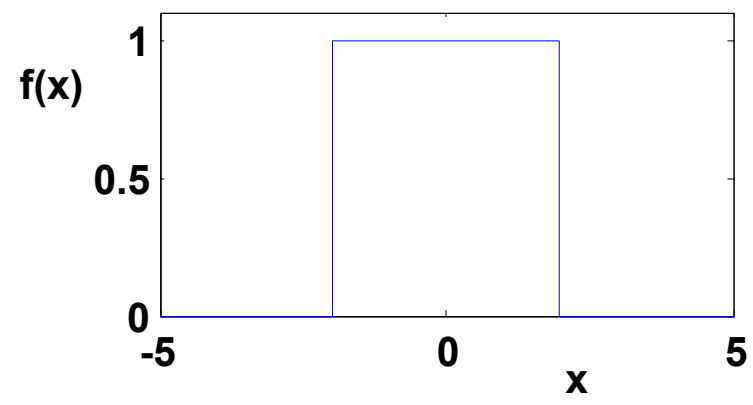
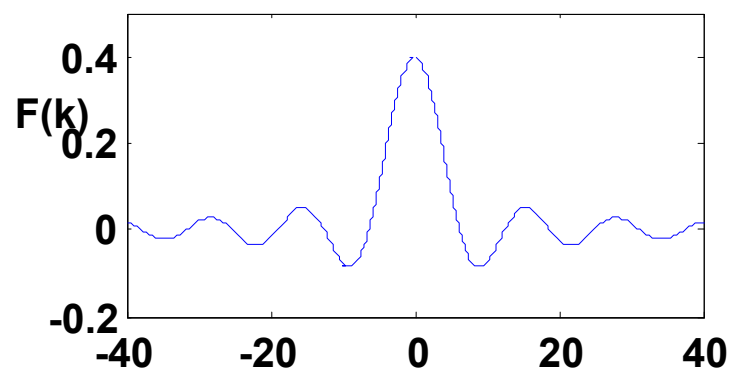
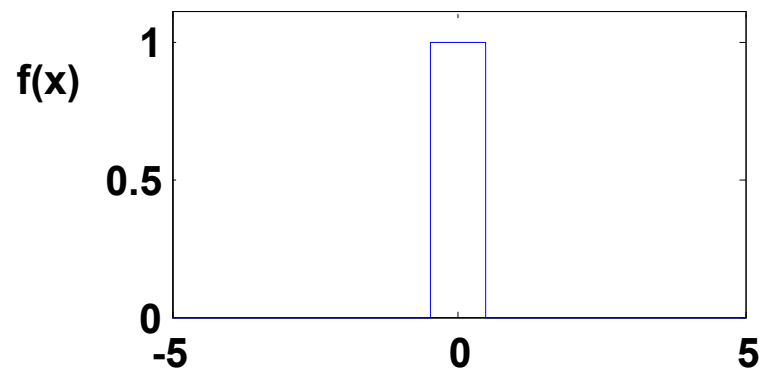
***Spektrální složení: monochromatická vlna,
diskrétní čárové spektrum (struna),
spojité spektrum (Gaussova křivka- spektrální čára),
spojité spektrum (záření absolutně černého tělesa).***



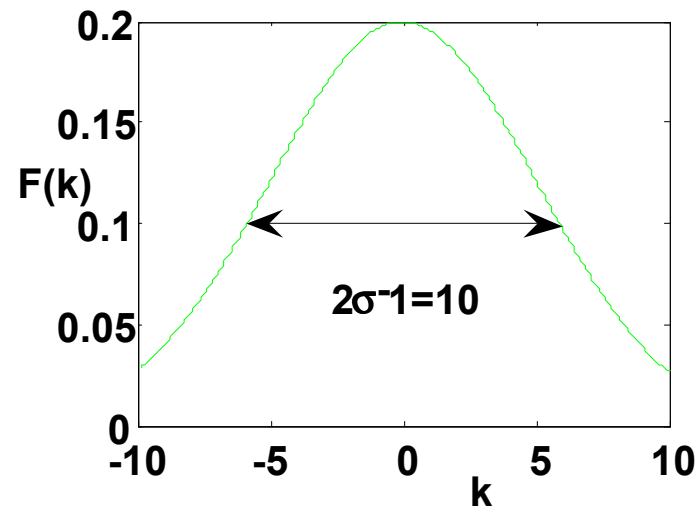
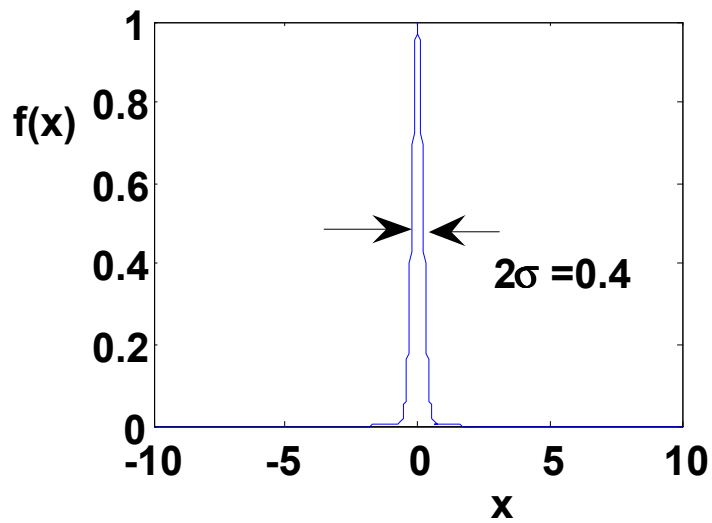
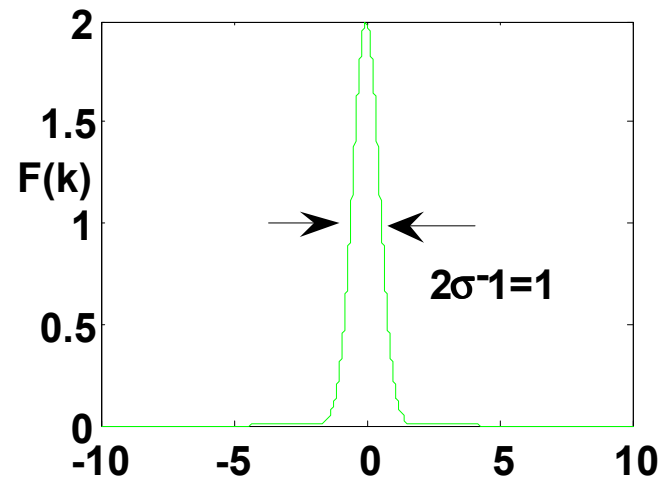
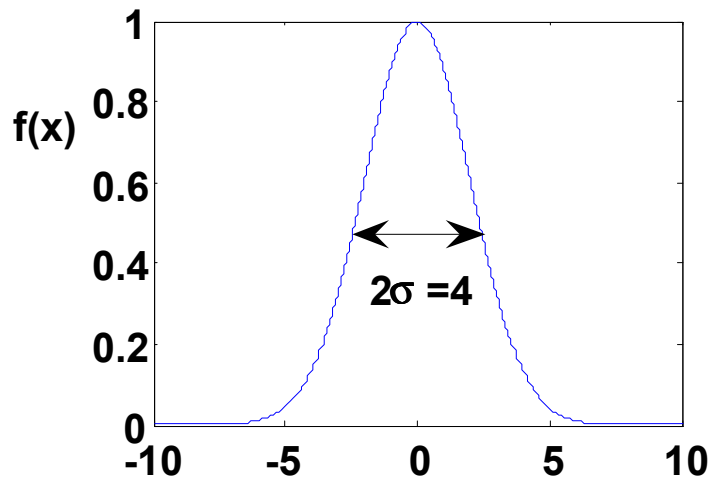
***Postupná náhrada pilového kmitu
členy Fourierovy řady***



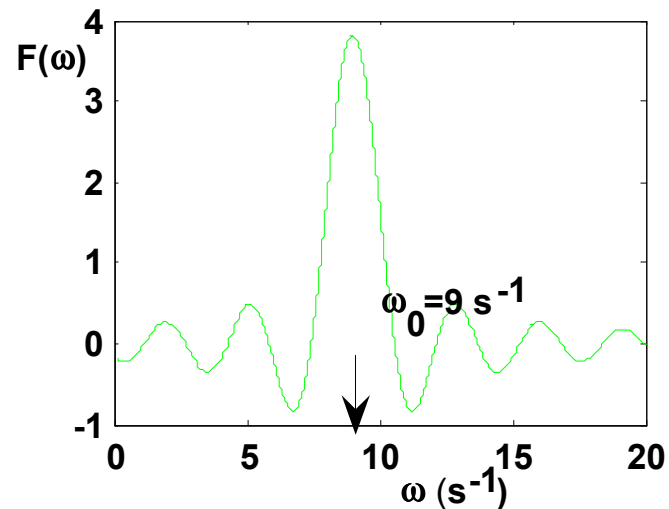
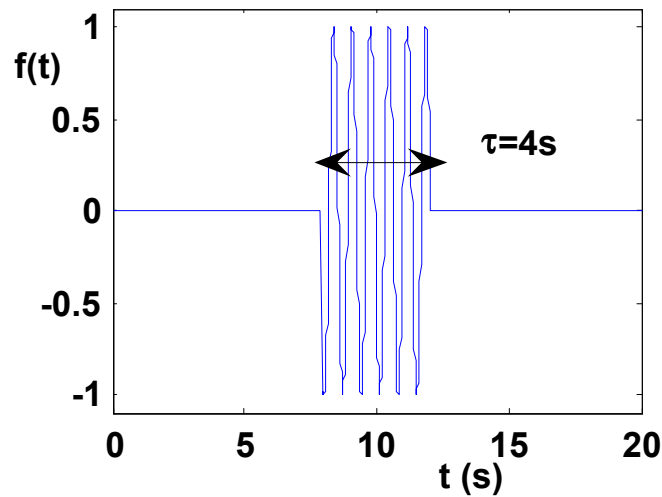
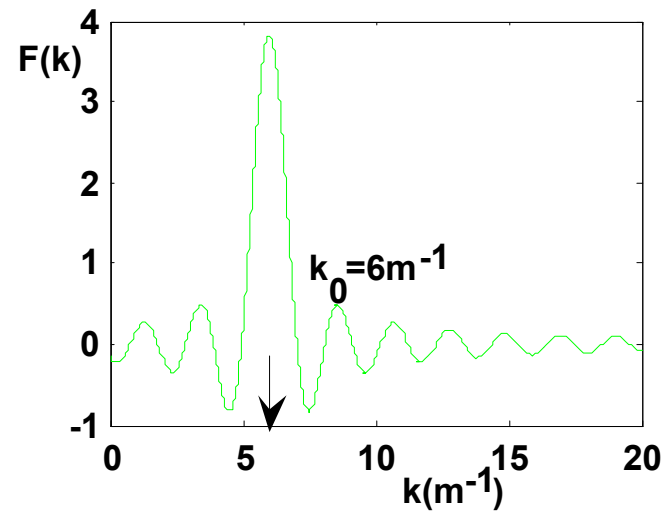
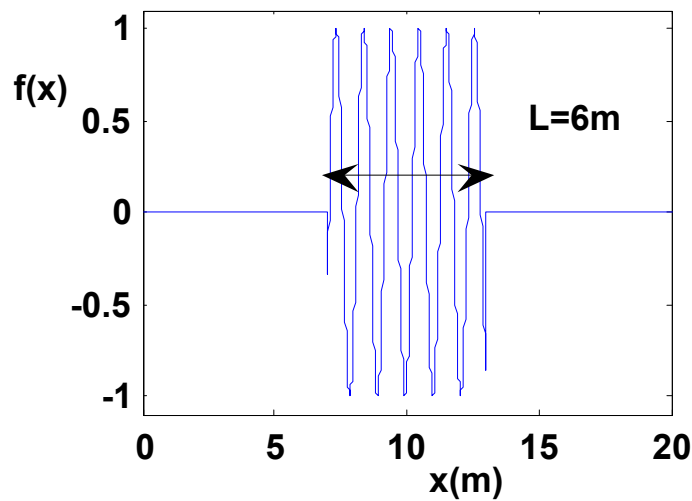
Fourierova transformace pravoúhlého pulzu.



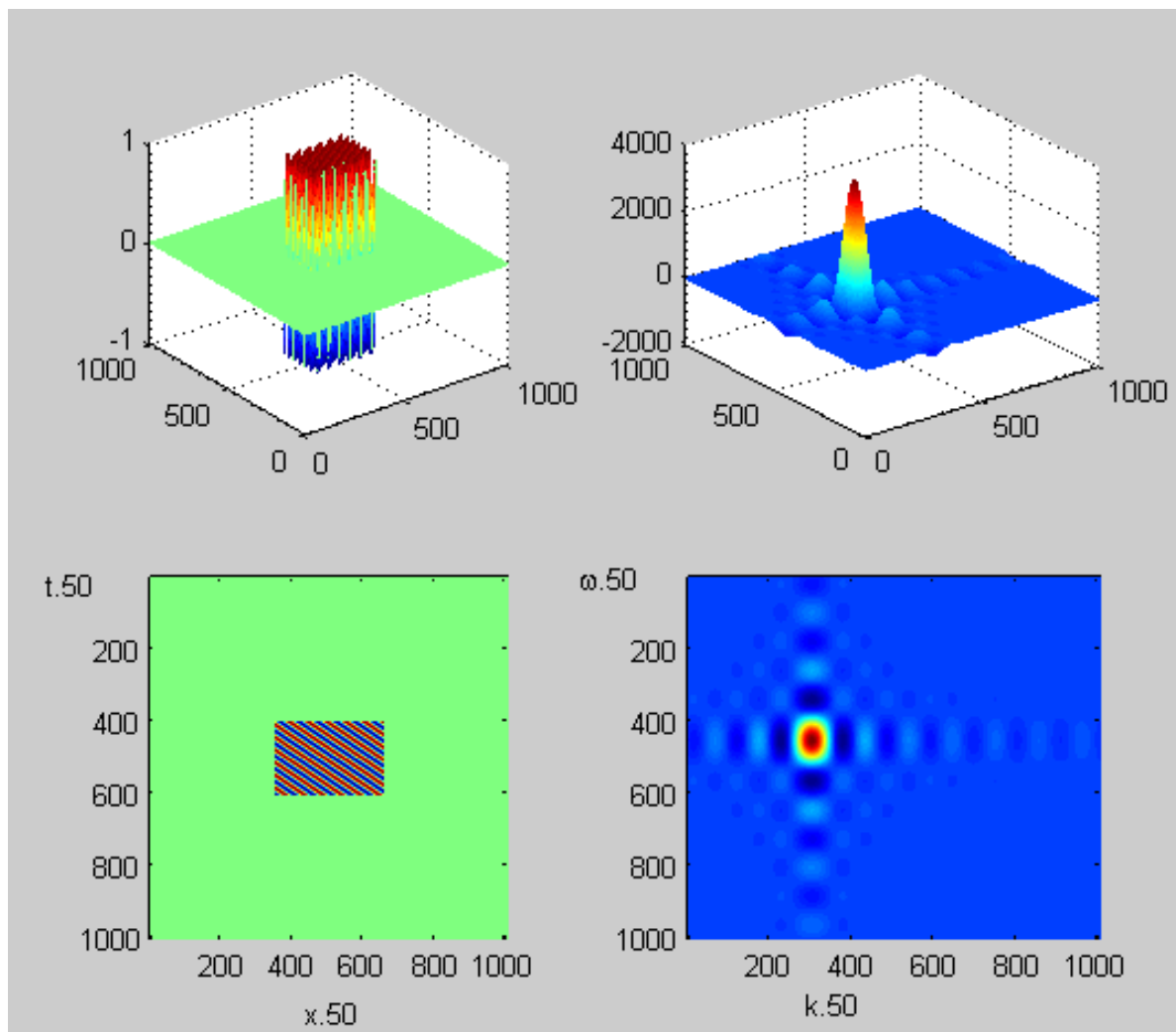
Srovnání výsledku Fourierovy transformace pro různě široké pulzy



Fourierova transformace pulzu ve tvaru Gaussovy křivky



***Fourierův (Laplaceův) obraz
vlnového klubka v prostoru a čase***



Zobrazení vlnového klubka v čase a prostoru v 3dm.