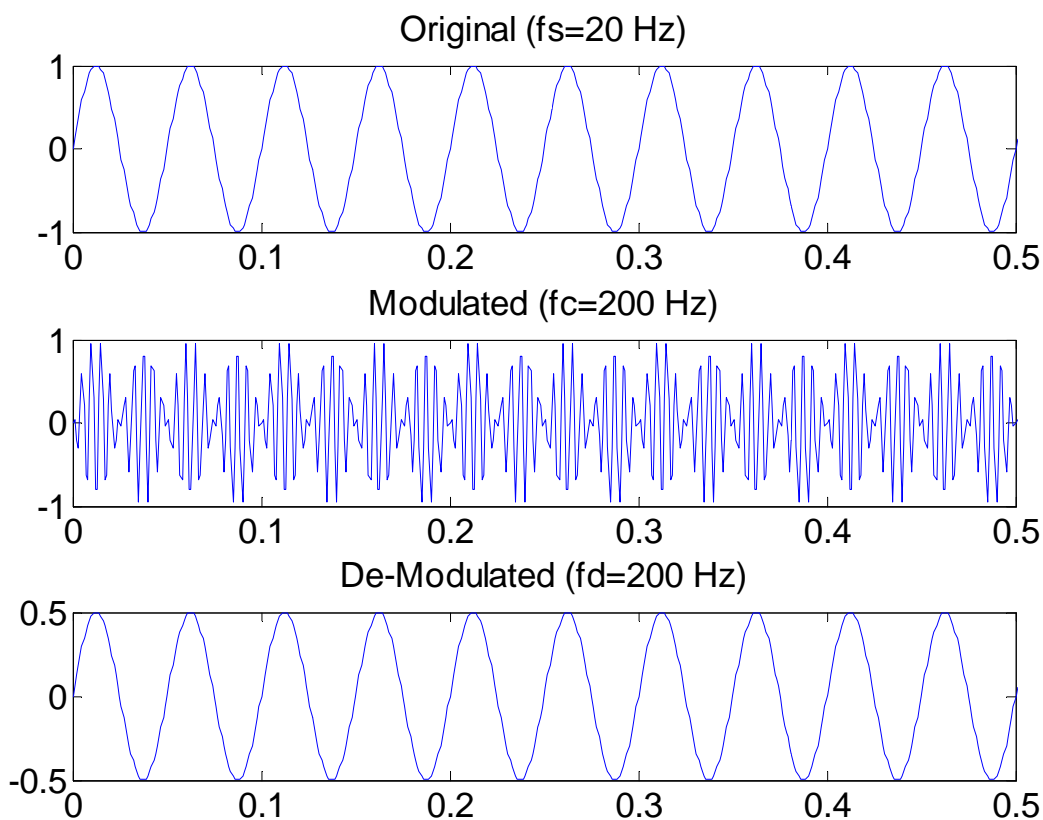
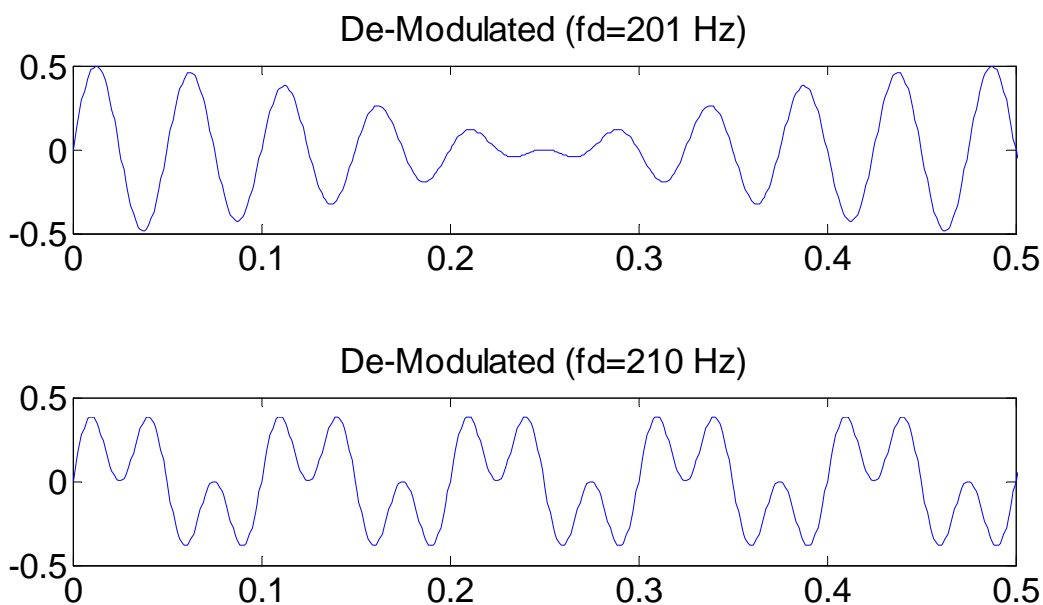


(1) 復調周波数 f_d が変調周波数 f_c と等しい時



(2) f_c と f_d が等しくない時 ($f_c=200$ Hz)



(付録) MATLAB プログラムソース (SIGNAL PROCESSING TOOLBOX が必要)

```
% EXERCISE OF AMPLITUDE MODULATION
```

```
%% INITIALIZATION
```

```
clear; clc; clf; close all;
```

```
set(0, 'DefaultUiControlFontSize', 16);
```

```
set(0, 'DefaultAxesFontSize', 16);
```

```
set(0, 'DefaultTextFontSize', 16);
```

```
set(0, 'DefaultLineLineWidth', 1);
```

```
set(0, 'DefaultAxesLineWidth', 1);
```

```
set(0, 'DefaultTextLineWidth', 1);
```

```
set(0, 'DefaultTextFontName', 'Helvetica');
```

```
set(0, 'DefaultAxesFontName', 'Helvetica');
```

```
%%
```

```
fsignal=20; % SIGNAL SOURCE FREQUENCY
```

```
fsamp=1000; % SAMPLING FREQUENCY
```

```
fcarry=200; % CARRY FREQUENCY
```

```
fdemod=fcarry+0; % DE-MODULATION FREQUENCY
```

```
tend=1; % END OF TIME
```

```
t = (0:1/fsamp:tend); % TIME RANGE
```

```
x = sin(2*pi*fsignal*t); % ORIGINAL SIGNAL SOURCE
```

```
y = modulate(x, fcarry, fsamp, 'am'); % MODULATION
```

```
z = demod(y, fdemod, fsamp, 'am'); % DE-MODULATION
```

```
m=3; n=1; % PLOT
```

```
xpltMax=0.5;
```

```
subplot(m, n, 1); plot(t, x); xlim([0 xpltMax]); title(sprintf('Original (fs=%.0f Hz)', fsignal));
```

```
subplot(m, n, 2); plot(t, y); xlim([0 xpltMax]); title(sprintf('Modulated (fc=%.0f Hz)', fcarry));
```

```
subplot(m, n, 3); plot(t, z); xlim([0 xpltMax]); title(sprintf('De-Modulated (fd=%.0f Hz)', fdemod));
```