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% mat01.m
%
% einige Beispiele elementarer Funktionen
% Robert Denk 7. 12. 2004

clear all;
close all;

figure(1);
x = [-3:0.05:3];
y = [-3:0.05:0.95];
plot(x,exp(x), x, 1+x, y, 1./(1-y));
axis([-3 3 -5 10]);
grid;
legend('exp','1+x', '1/(1-x)');
title('Die Exponentialfunktion');

figure(2);
x = [0.01:0.01:4];
plot(x,log(x));
grid;
title('Der Logarithmus')

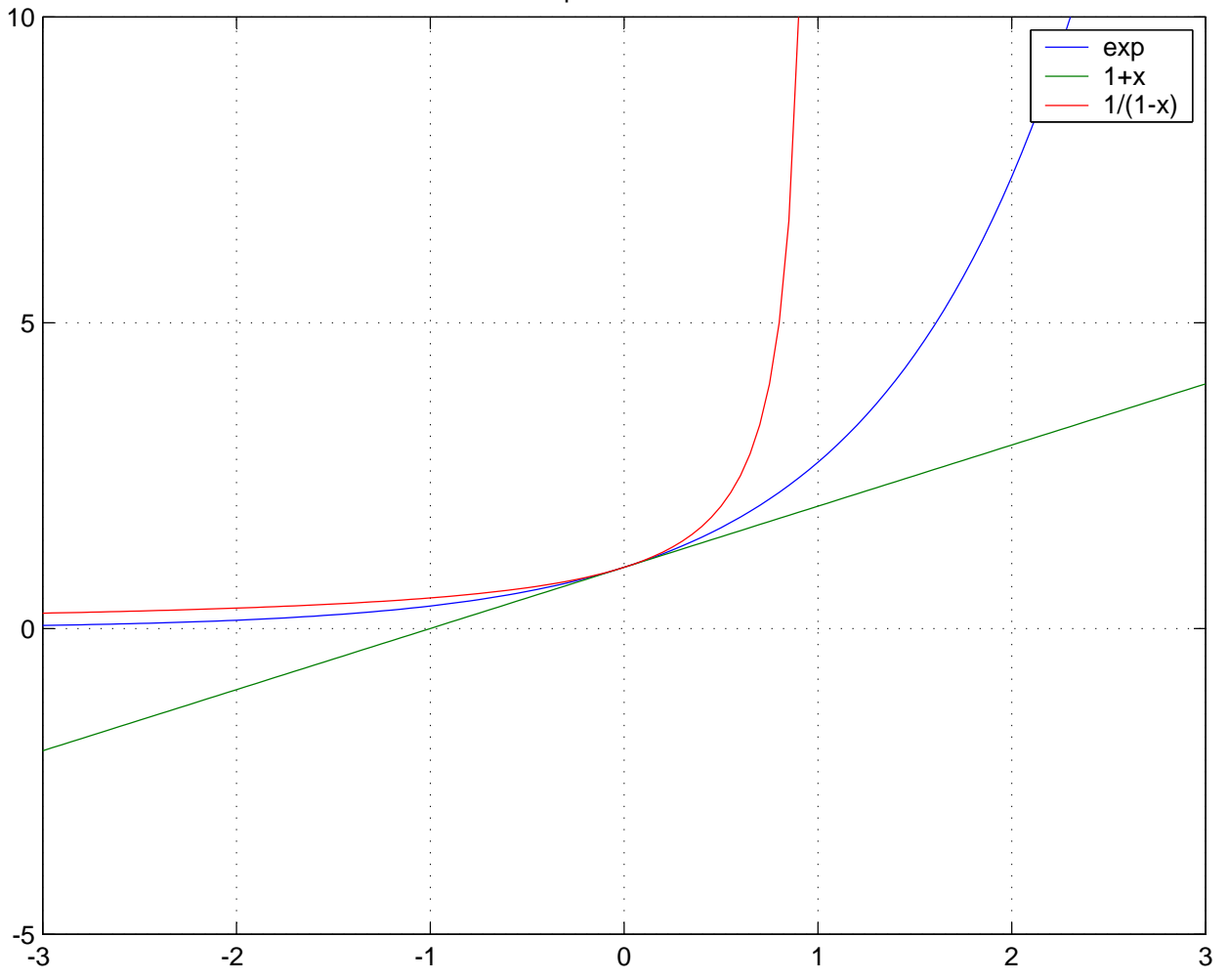
figure(3);
set(gcf,'Renderer','zbuffer');
x = [-2:0.1:2];
for n=1:41
    for m=1:41
        z(m,n) = x(n)+i*3*x(m);
    end
end
surf(x,3*x,real(exp(z)));
xlabel('Re(z)');
ylabel('Im(z)');
zlabel('Re(exp(z))');
title('Die komplexe Exponentialfunktion');

figure(4);
x = [-2*pi:0.05:2*pi];
plot(x,sin(x),x,cos(x),'r');
legend('sin','cos');
title('Die trigonometrischen Funktionen');
grid;

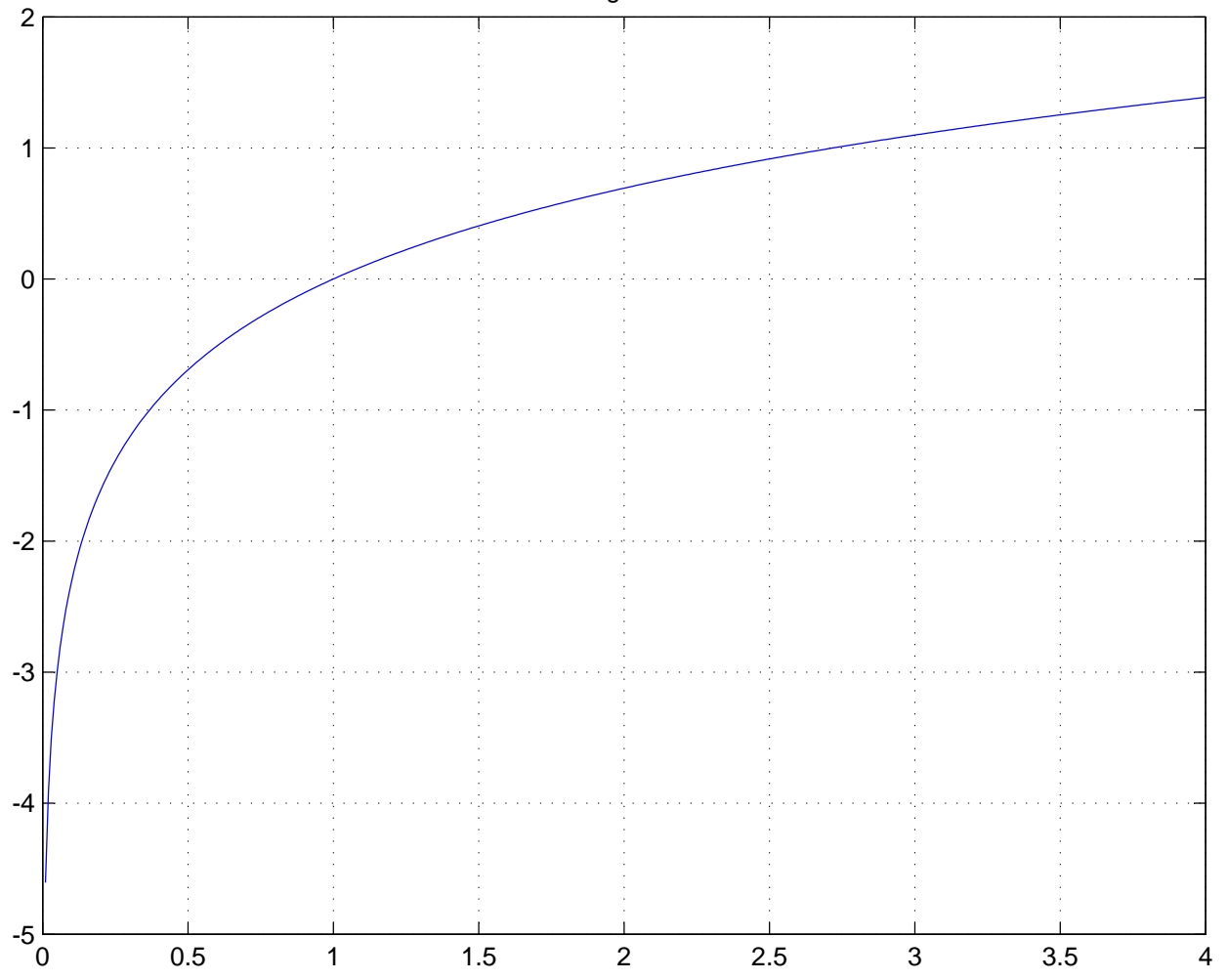
figure(5);
x = [-pi/2+0.02:0.02:pi/2-0.02];
y = [x-2*pi x-pi x x+pi x+2*pi];
grid
hold;
for k=-2:2
    plot(x-k*pi, tan(x-k*pi), 'b');
    plot(x-(k+1/2)*pi, cot(x-(k+1/2)*pi), 'r');
end
grid
end
hold
axis([-2*pi 2*pi -4 4]);
title('Tangens und Cotangens');
legend('tan','cot');
grid

```

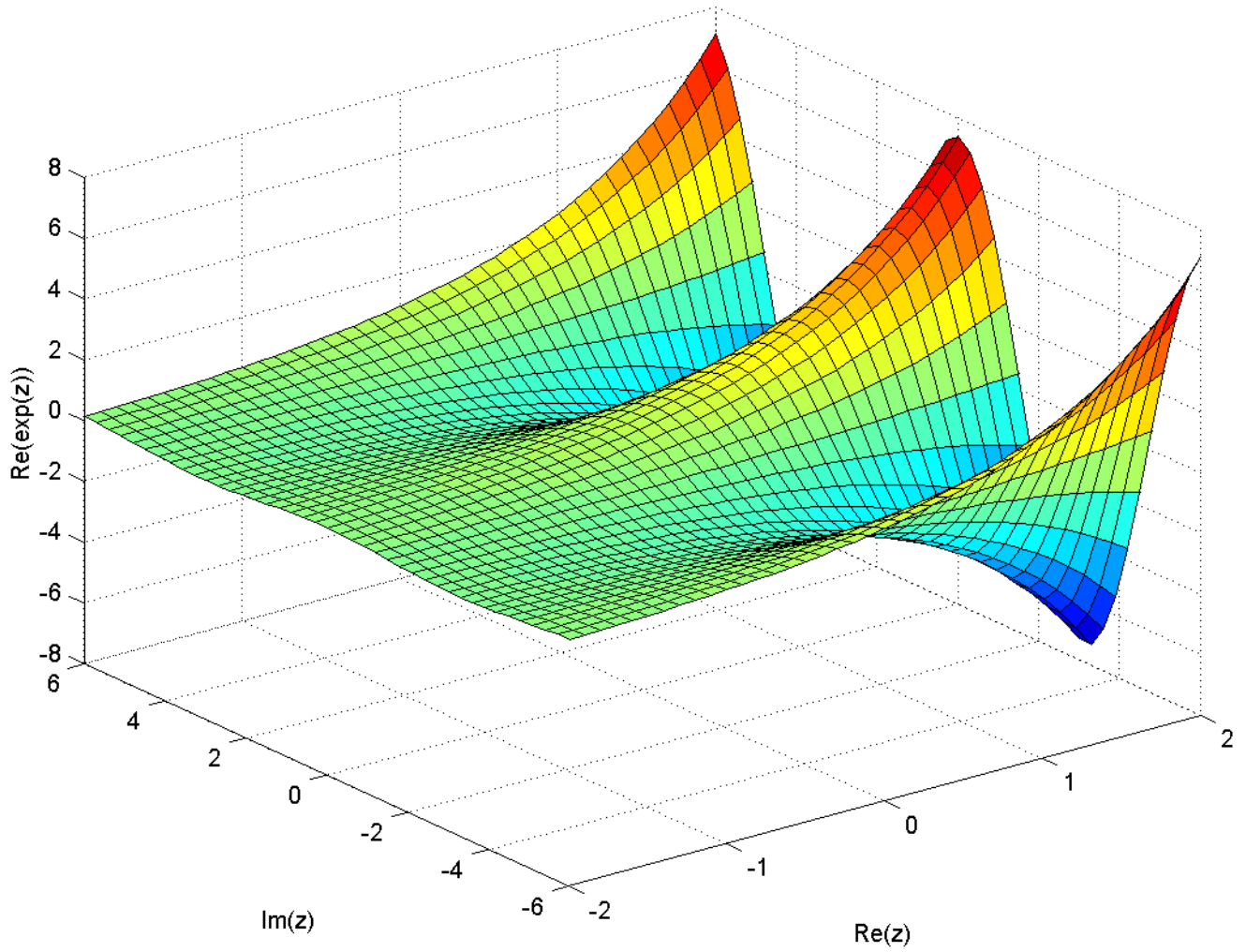
Die Exponentialfunktion



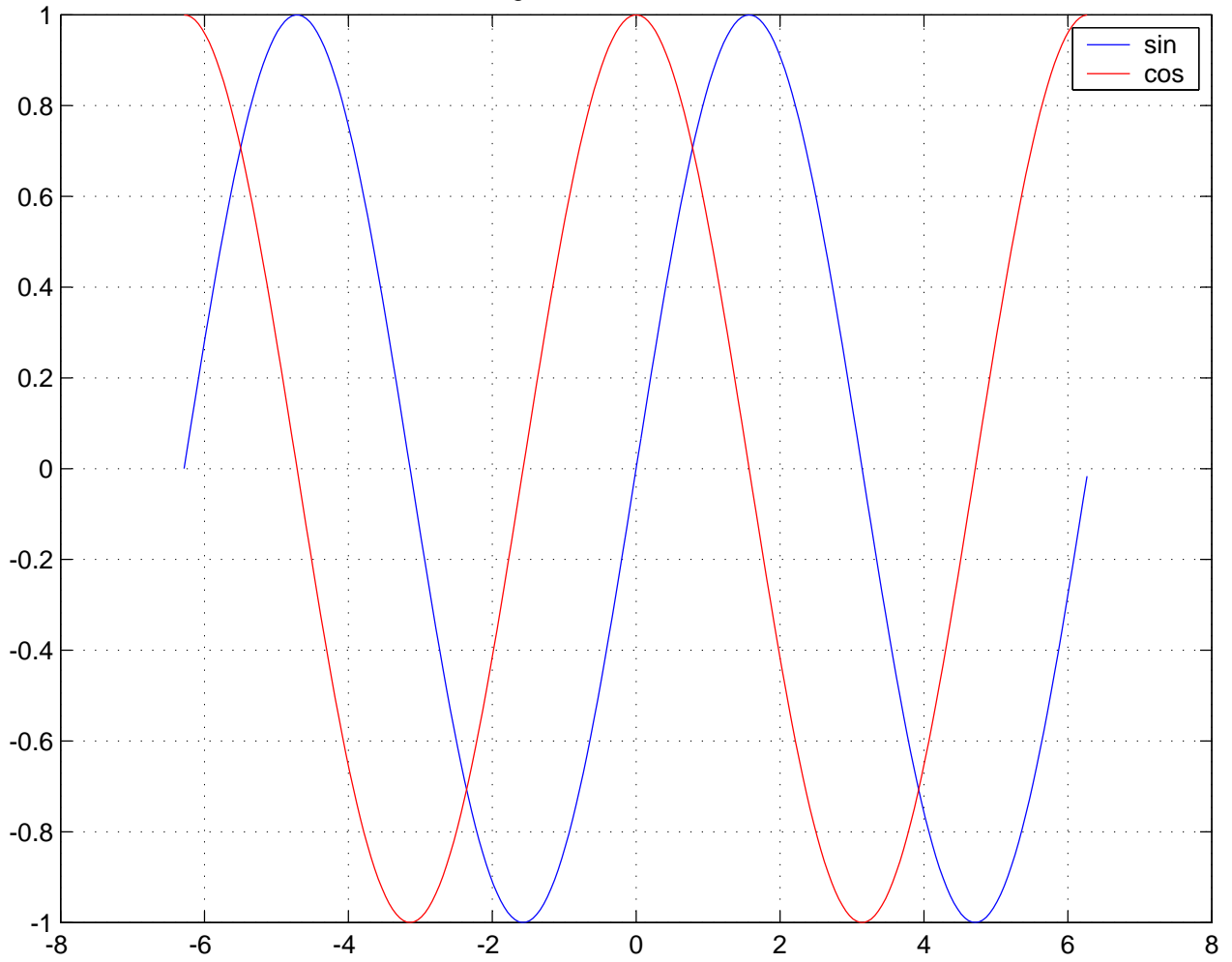
Der Logarithmus



Die komplexe Exponentialfunktion



Die trigonometrischen Funktionen



Tangens und Cotangens

