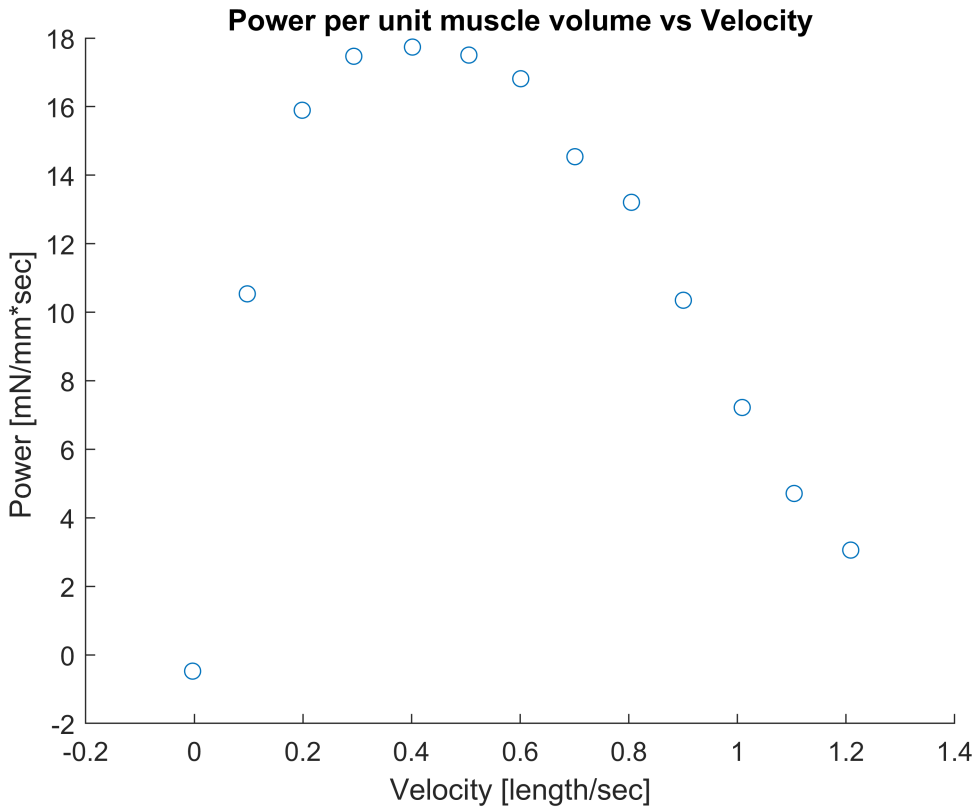
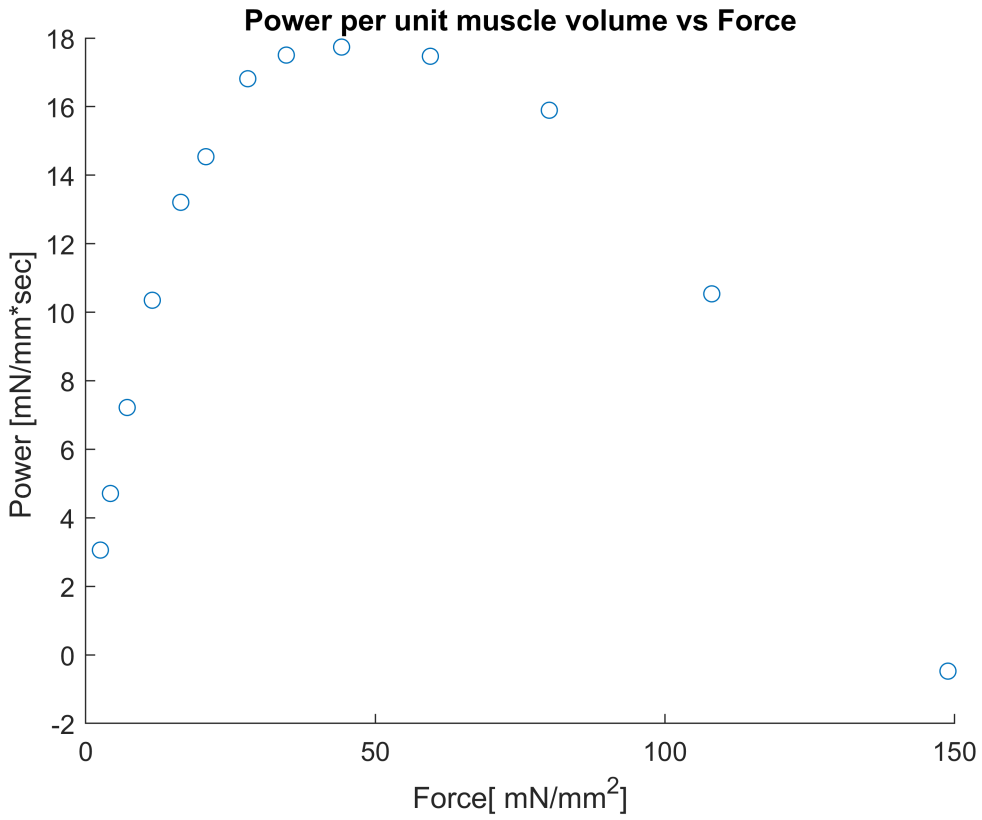
Problem 3a

```
data = readmatrix('Default Dataset (2)');

velocity=data(:,1);
force = data(:,2);

power = velocity .* force;

figure
hold on
scatter( velocity, power)
title( 'Power per unit muscle volume vs Velocity')
xlabel('Velocity [length/sec]')
ylabel( 'Power [mN/mm*sec] ')
```




```
figure
hold on
scatter( force, power)
title( 'Power per unit muscle volume vs Force')
xlabel('Force[ mN/mm^2]')
ylabel( 'Power [mN/mm*sec] ')

hold off
```




```
maxpower = max(power)
```

```
maxpower = 17.7386
```

```
% the max power is roughly 17.73 mN/mm* sec
```

Problem 3b

```
figure
hold on
plot( velocity,force,'o')

F = @(x,velocity) ( (x(1).*x(2) - (x(3).* velocity)) ./ (x(2)+velocity ))
```

```
F = function_handle with value:
    @(x,velocity)((x(1).*x(2)-(x(3).*velocity))./(x(2)+velocity))
```

```
x = lsqcurvefit(F,[1 2 3],velocity,force)
```

```
Local minimum possible.

lsqcurvefit stopped because the final change in the sum of squares relative to
its initial value is less than the value of the function tolerance.

<stopping criteria details>
x = 1×3
  148.0988    0.3372   39.6740
```

```
plot(velocity,F (x, velocity),'r','Linewidth', 1)
xlabel('Force [mN/mm^2]')
ylabel( 'Velocity [length/sec]')
title( 'Force Velocty Data with Fitted Hill Equation ')
legend(' Data', ' Hill Fit');
```