Question 1 a

```
p = @(x) polyval([1 0 0 0 0 -1], x);
X = linspace(-2, 2, 6);
Y = p(X);
x = -1.7;
err = abs(p(x) - linterp(X, Y, x))
```

```
err = 3.5527e-15
```

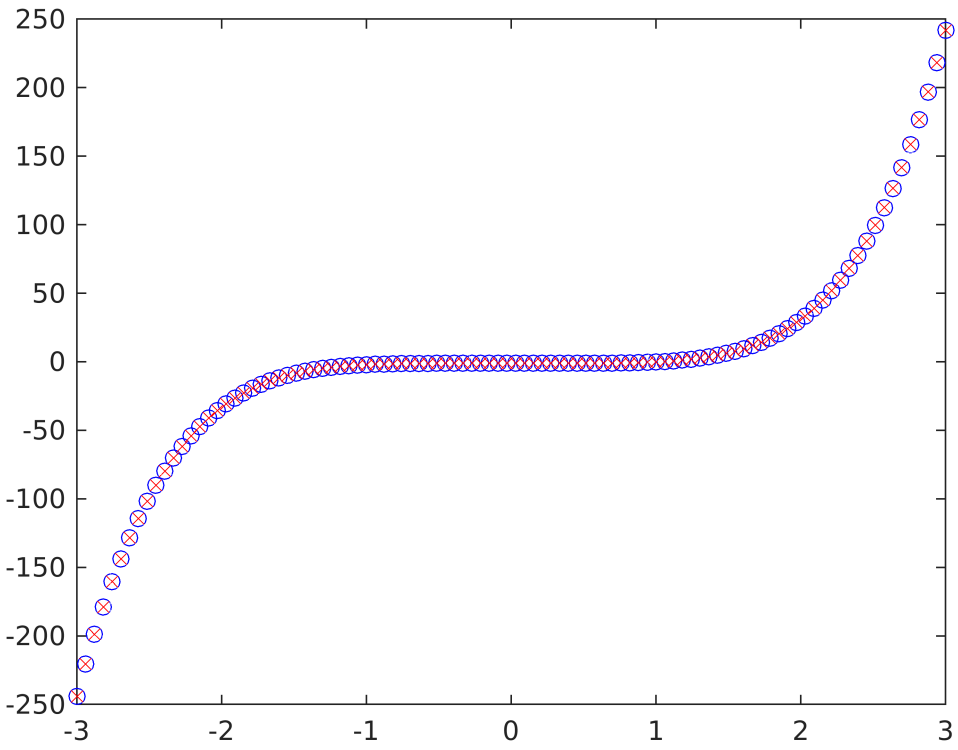
Question 1 b

It will fail with matrices.

Fixed. Changed * to .* for element-wise matrix multiplication.

Question 1 c

```
x = linspace(min(X) - 1, max(X) + 1, 100);
plot(x, p(x), 'bo', x, linterp(X,Y,x), 'rx')
```



Question 2

```
X = [1 5 3 2 6 1];
mypoly(X)
```

```
ans = 1×7
```

```
     1   -18   124  -414   703  -576   180
```

```
function y = linterp(X, Y, x)
    y = 0;
    for i = 1:numel(X)
        yy = Y(i);
        for j = 1:numel(X)
            if i ~= j
                yy = yy .* (x - X(j)) / (X(i) - X(j));
            end
        end
        y = y + yy;
    end
end

function p = mypoly(X)
    p = [1 -X(1)];
    for i = 2:numel(X)
        p = [p,0] - X(i)*[0,p];
    end
end
```