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## Given data points

```
x = [10 15 20 25 40 50 55 60 75];  
y = [5 20 18 40 33 54 70 60 78];
```

## calculating mean

```
meanx = sum(x)/length(x);  
meany = sum(y)/length(y);  
  
x_meanx = x - meanx;  
y_meany = y - meany;  
  
squaresx = sum(x_meanx.^2);  
squaresy = sum(y_meany.^2);  
  
correlation_coef = sum((x_meanx).*(y_meany)) /  
    sqrt((squaresx).*(squaresy))  
  
% y = b0 +b1*x  
% where b1 = summation(x.*y) - sum(x).*sum(y) / ( sum(x.^2) -  
    sum(x).^2/n  
% and b0 = mean(y) - b1*means(x);  
  
slope = sum( y.*(x - meanx) ) / sum( x.*(x - meanx) );  
intercept = mean(y) - (slope * mean(x))  
  
plot(x,y,'ro')  
hold on;  
grid minor;  
Y=@(x) intercept + slope*x  
plot(x,Y(x));  
hold off;  
  
yp = Y(x)  
legend('Data points','Regression polynomial');  
xlabel('X values');  
ylabel('Y values');  
  
stnerrorofestimate = sqrt(sum((y-yp).^2)/length(x))  
y_at_32 = Y(32)  
  
function m = sum(x)  
    m = 0;  
    for i = 1:length(x)  
        m = m + x(i);  
    end  
    m  
end
```

---

```
m =  
    350  
  
m =  
    378  
  
m =  
    4.0889e+03  
  
m =  
    5062  
  
m =  
    4330  
  
corelation_coef =  
    0.9518  
  
m =  
    4.3300e+03  
  
m =  
    4.0889e+03  
  
intercept =  
    0.8179  
  
Y =  
    function_handle with value:  
    @(x)intercept+slope*x  
  
yp =
```

---

Columns 1 through 7

11.4076 16.7024 21.9973 27.2921 43.1766 53.7663 59.0611

Columns 8 through 9

64.3560 80.2405

$m =$

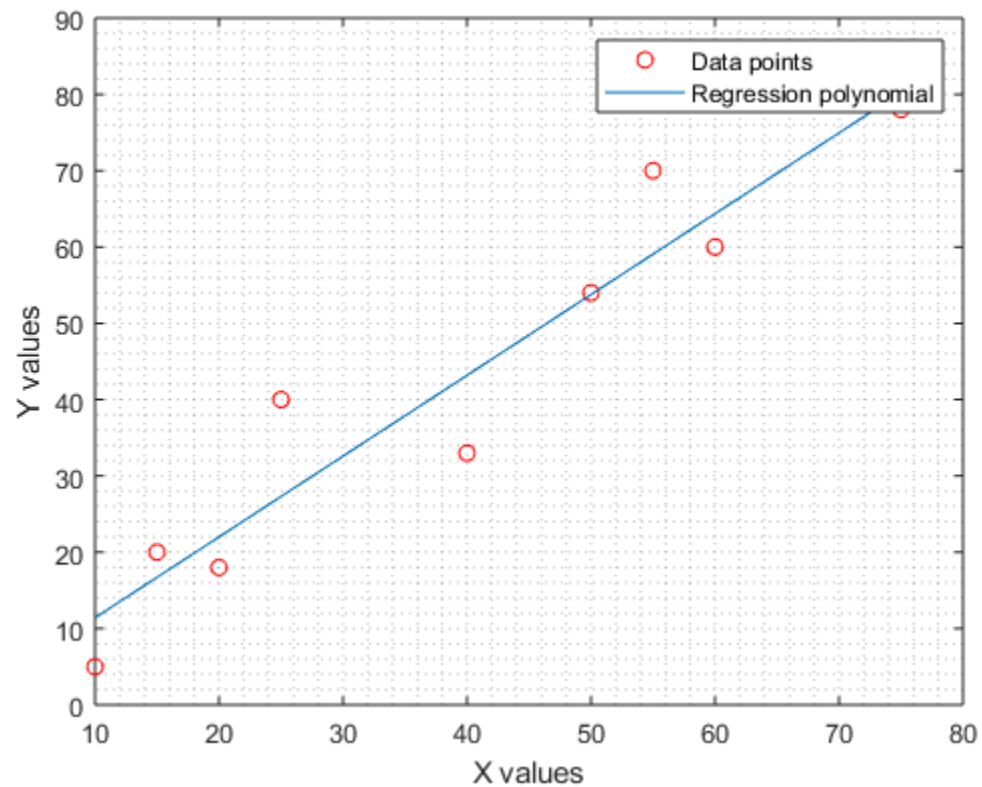
476.6712

$stnerrorofestimate =$

7.2776

$y_{at\_32} =$

34.7049



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