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-----WAY-ONE-----

```
f=@(x) log(x^2)-0.7;
x_l=0.5;
x_u=2;
if f(x_l)*f(x_u) > 0
    fprintf('There is no solution in the given interval');
    return
elseif f(x_l) == 0
    fprintf('%f is the solution',x_l);
elseif f(x_u) == 0
    fprintf('%f is the solution', x_u);
end
fprintf('i   xl   xu   xr\n');
for i = 1:10
    xrprev=xr;
    xr = x_u - (x_l-x_u)*f(x_u)/(f(x_l)-f(x_u));
    ea=abs(((xrprev-xr)/xr)*100);
    fprintf('%i %f %f %f\n',i,x_l,x_u,xr)

    if ea < 0.005 & ea ~=0

        return
    end
    if f(x_l)*f(xr) < 0
        x_u = xr;

    elseif f(x_u)*f(xr) < 0
        x_l = xr;
    end

end
```

-----OUTPUT-----

```
i   xl   xu   xr
1 0.500000 2.000000 1.628707
2 0.500000 1.628707 1.497014
3 0.500000 1.497014 1.448399
4 0.500000 1.448399 1.430156
5 0.500000 1.430156 1.423267
6 0.500000 1.423267 1.420659
7 0.500000 1.420659 1.419671
8 0.500000 1.419671 1.419296
9 0.500000 1.419296 1.419154
10 0.500000 1.419154 1.419100
```

-----WAY-TWO-----

```
f=@(x) (log(x^2)-0.7);
xl=0.5;
xu=2;
```

```

es=0.005;

fxl=f(xl);
fxu=f(xu);

if fxl*fxu<0

    xr=xu-(fxu*(xl-xu)/(fxl-fxu));
    ea=1000;           %there is no ea1 so i replaces it with 1000 .

    fprintf('xr: ');disp(xr);
    fprintf('ea: ');disp(ea);

    while ea>es
        fxr=f(xr);

        if fxl*fxr<0
            xu=xr;
            fxu=fxr;
            fprintf('xu: ');disp(xu);
        else
            xl=xr;
            fxl=fxr;
            fprintf('xl: ');disp(xl);
        end

        xrprev=xr;

        xr=xu-(fxu*(xl-xu)/(fxl-fxu));
        ea=abs(((xrprev-xr)/xr)*100);

        fprintf('xr: ');disp(xr);
        fprintf('ea: ');disp(ea);
    end
else
    fprintf('Entered your initial guesses are wrong!\n');
end

```

-----OUTPUT-----

```

xr:  1.6287

```

```

ea:  1000

```

```

xu:  1.6287

```

```

xr:  1.4970

```

```

ea:  8.7971

```

```

xu:  1.4970

```

```

xr:  1.4484

```

```

ea:  3.3565

```

xu: 1.4484

xr: 1.4302

ea: 1.2756

xu: 1.4302

xr: 1.4233

ea: 0.4840

xu: 1.4233

xr: 1.4207

ea: 0.1836

xu: 1.4207

xr: 1.4197

ea: 0.0696

xu: 1.4197

xr: 1.4193

ea: 0.0264

xu: 1.4193

xr: 1.4192

ea: 0.0100

xu: 1.4192

xr: 1.4191

ea: 0.0038