

Answer on Question #45475, Programming, Mat LAB | Mathematica | MathCAD | Maple

Question:

write separate functions in Matlab `arithmetic_mean()`, `rms_average()`, `harmonic_mean()`, `geometric_mean()` which takes the data array as the argument and compute the respective quantities. Write a script `averages` which take two values `xlow` and `xhigh` and generate 10000 random numbers in the range `[xlow...xhigh]`, and calls the appropriate functions to compute arithmetic mean (average), rms average, geometric mean and harmonic mean.

Answer:

File "`arithmetic_mean.m`":

```
function [arithmetic_mean_value] = arithmetic_mean (array)

arithmetic_mean_value = mean(array);

end
```

File "`rms_average.m`":

```
function [rms_average_value] = rms_average (array)

rms_average_value = rms(array);

end
```

File "`harmonic_mean.m`":

```
function [harmonic_mean_value] = harmonic_mean (array)

harmonic_mean_value = geomean(array);

end
```

File "`geometric_mean.m`":

```
function [geometric_mean_value] = geometric_mean (array)

geometric_mean_value = geomean(array);
```

end

File “averages.m”:

```
function [] = averages (xlow, xhigh)
```

```
    random_array = random('unif', xlow, xhigh, 10000, 1);
```

```
    average_value = arithmetic_mean(random_array)
```

```
    rms_value = rms_average(random_array)
```

```
    geometric_mean_value = geometric_mean(random_array)
```

```
    harmonic_mean_value = harmonic_mean(random_array)
```

end

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