For a poisson distribution, does μ have to be an integer?

A) I really think it's yes.

B) I'm pretty sure it's yes.

C) I'm pretty sure it's no.

D) I really think it's no.

Jay's reason

orig = $\boxed{\text{it's an avg}}$

new ∃ graph Fig. 11.2 where $\mu = 0.75$

A radioactive sample is monitored and undergoes an average of 0.75 decays/min.

What is the probability of observing 2 decays in 2 minutes?

(You are encouraged to use Igor to solve the problem.)

A) 0.19

B) 0.25

C) 0.27

D) 0.32

E) 0.44

Stats Poisson PDF

I ...

A) think I have a math problem

B) " an Igor problem

C) " some other problem

D) I think I've got it.

C)

D) I think i've got it.

approaches

print statsPoissonPdf(1, 0.75) => doesn't match the answer options

#

(2, 1.5) => 0.25

(2, 0.75) => doesn't match

What is the smallest interger mean for a poisson distribution that appears Gaussian? (Don't calculate the Gaussian -- yet.)

A) 4
B) 5
C) 6
D) 7
E) 9

```
make/O/N=10 PoissonDist = statsPoissonPDF(x, 1.5)
```

Standard deviation of the Poisson distribution

$$\sigma_{Poiss} = \sqrt{\mu}$$

of a distribution

<u>Not</u> the uncertainty of the counting,
but rather the variation due to randomness.

A radioactive sample is monitored and the average decay rate is measured as 150 decays in 10 minutes. A measurement of the background radiation is measured for 3 minutes and detects 12 decay events.

Find the average rate and uncertainty of decays from the source.

$\cancel{\frac{150-3}{10}}$ $\cancel{\frac{150-12}{10}}$

A) I have an answer I'm happy with

$\boxed{\frac{150 \text{ cnts}}{10 \text{ min}} - \frac{12 \text{ cnts}}{3 \text{ min}}} = 15 - 4$

$= 11 \text{ cnts/min}$

B) I have an answer I'm not quite happy with

C) still working

D) stuck

A) I got this B) didn't

What about uncert?

↳ prop. $\sqrt{\Sigma(\,)^2}$

What is unc. in each?

support: $\sigma = \sqrt{n}$

A) $\sqrt{15}$, $\sqrt{4}$

$\frac{150 \text{ cnts}}{10 \text{ min}}$

B) $\sqrt{150}$ $\sqrt{12}$

C) $\boxed{\frac{\sqrt{150}}{10 \text{ min}}}$ $\frac{\sqrt{12}}{3 \text{ min}}$

support: Taylor did it this way

c) $\frac{\ldots}{10}$

way

→ large amt of time
(divide by total #)

bkd

avg orig

$\frac{150 \text{ cats}}{10 \text{ min}}$

I

$\frac{\text{cats}}{\text{min}}$

unc → $\sqrt{\text{counted thing}}$ (not the time)