Tell whether the distribution represents a probability distribution. If not, explain why not.

3.

x	1	2	3	4	5
P(x)	0.1	0.2	0.3	0.35	0.05

Yes

4.

x	1	2	3	4	5
P(x)	0.01	-0.1	0.6	0.09	0.4

NO $P(2) = -0.1$

5.

x	1	2	3	4	5
P(x)	0.5	0.5	0	0	0

Yes

Determine the probability distribution's missing value.

6.

x	1	2	3	4	5
P(x)	0.1	0.2		0.1	0.3

0.30

7.

x	6	7	8	9	10
P(x)	0.06	0.11	0.23	0.44	

0.16

*8.

x	400	500	600	700	800
P(x)	0.1	0.35		0.55	0.1

← Not A Probability Distribution $\Sigma(P(x)) = 1.1$ (already)

9. The probability that a household has a puppy is 0.71. There are 5 houses in a cul-de-sac. What is the probability that more than 2 houses have a puppy?

B $P(0) = ({}_5C_0)(0.71)^0(0.29)^5 = 0.002$
$P(1) = ({}_5C_1)(0.71)^1(0.29)^4 = 0.025$
$1 - (0.002 + 0.025) =$

10. According to a recent study, in any large crowd, you'll hear about 7 coughs per minute.
   a. What is the probability that in a given minute you'll hear 7 coughs?

$\mu = 7$

$P(7) = 0.149$

P b. What is the probability that in a given minute you'll hear 9 coughs?

$P(9) = 0.101$

   c. What is the probability that in a given minute you'll hear 4 coughs or fewer (i.e. 0 – 4 coughs)?

$P(0) + P(1) + P(2) + P(3) + P(4) = 0.173$

11. According to a report in Bluff Magazine, 39% of people play Texas Holdem (for fun or money).
   a. What's the probability that the third person is the first you meet that plays Texas Holdem?

$P(3) = (0.61)^2(0.39) = 0.145$

G b. What's the probability that the sixth person is the first you meet that plays Texas Holdem?

$P(6) = (0.61)^5(0.39) = 0.033$

   c. What's the probability that it will take you fewer than four people to find the first person that plays Texas Holdem (1, 2, or 3 people)?

$P(x \leq 3) = P(1) + P(2) + P(3) = 0.773$

12. Calculate the Expected Value.

Multiply $x \cdot P(x)$
Add them up.

x	5	10	15	25	-5
P(x)	0.1	0.08	0.05	0.02	0.75

$0.5 + 0.8 + 0.75 + 0.5 + -3.75 = -1.2$