

## Sample test 2

**Problem 1.** Consider experiment consisting of flipping an unfair coin. On each single flip the chance to get a tail is 60%. What is the probability to have 4 heads if you flip a coin 6 times?

**Problem 2.** Given the population of measurements with mean  $\mu = 10$  and variance  $\sigma^2 = 25$ . We take a random sample of 35 measurements.

1. What is the shape of sampling distribution?
2. Compute mean and standard deviation of this sampling distribution.
3. If the size of a sample is 50, will the mean and std. dev of new sampling distribution be different from the ones computed in part b).

**Problem 3.** Consider a normally distributed random variable  $x$  with mean  $\mu = 20$  and standard deviation  $\sigma = 2$ . Calculate:

1.  $P(x < 18)$
2.  $P(19 \leq x < 24)$
3.  $P(21 < x < 22)$

**Problem 4.** Will be posted soon.

**Problem 5.** A multiple choice exam consists of 10 problems. Each problem has 4 different answers. In order to pass student needs to answer 8 out of 10 correctly. What is the probability of passing:

1. if student randomly guesses on each question.
2. two out of four answers on each problem are obviously wrong, so student needs to guess between remaining two.