Worksheet: Tests of Significance

1. A die is rolled n times and the total number of spots counted. For each of the following cases, determine if the result can be explained as a chance variation. Calculate the test statistic z and the P-value (i.e., the chance of getting a test statistic as extreme or more extreme than the one given).

a) $n = 100$, sum $= 367$

b) $n = 100$, sum $= 316$

c) $n = 100$, sum $= 350$

d) $n = 100$, sum $= 384$

e) $n = 100$, sum $= 450$

f) $n = 1,000$, sum $= 3554$

g) $n = 1,000$, sum $= 3800$

2. A coin is flipped n times and the total fraction of tails counted. For each of the following cases, determine if the result can be explained as a chance variation. Calculate the test statistic z and the P-value (i.e., the chance of getting a test statistic as extreme or more extreme than the one given).

a) $n = 100$, fraction of tails $= 0.40$

b) $n = 100$, fraction of tails $= 0.45$

c) $n = 100$, fraction of tails $= 0.35$

d) $n = 100$, fraction of tails $= 0.55$

e) $n = 100$, fraction of tails $= 0.60$

f) $n = 1,000$, fraction of tails $= 0.45$

g) $n = 1,000$, fraction of tails $= 0.60$