Name _____ Score _____ Teacher _____ Date _____

Uniform Distribution

For X uniform on the stated closed interval [a,b], use density 1/(b-a) on the support and 0 outside it. Clip probability intervals to the support, divide overlap lengths for conditional intervals, include the boundary branches of the CDF, and give exact values where practical; otherwise round the final value to four decimals.

1. Let X be uniform on [-3, -1]. Find the 40th percentile q, defined by P(X <= q) = 0.4.

Given: X is measured in units and is continuous with constant density on [-3, -1] and density 0 outside; endpoints have probability 0.

2. Let X be uniform on [-6, 5]. Find Var(X). State the squared units.

Given: X is measured in units and is continuous with constant density on [-6, 5] and density 0 outside; endpoints have probability 0.

Name _____ Score _____ Teacher _____ Date _____

Uniform Distribution

For X uniform on the stated closed interval [a,b], use density 1/(b-a) on the support and 0 outside it. Clip probability intervals to the support, divide overlap lengths for conditional intervals, include the boundary branches of the CDF, and give exact values where practical; otherwise round the final value to four decimals.

3. Let X be uniform on [-6, 0]. Find P(-6 <= X <= 0 | -8 <= X <= -1).

Given: X is measured in units and is continuous with constant density on [-6, 0] and density 0 outside; endpoints have probability 0.

4. Let X be uniform on [-4, 6]. Find P(X >= 5).

Given: X is measured in units and is continuous with constant density on [-4, 6] and density 0 outside; endpoints have probability 0.

Name _____ Score _____ Teacher _____ Date _____

Uniform Distribution

For X uniform on the stated closed interval [a,b], use density 1/(b-a) on the support and 0 outside it. Clip probability intervals to the support, divide overlap lengths for conditional intervals, include the boundary branches of the CDF, and give exact values where practical; otherwise round the final value to four decimals.

5. **Let X be uniform on [-5, -2]. Two model descriptions are proposed. Model A has constant PDF 1/3 on [-5, -2] and 0 outside. Model B assigns probability d/3 to every subinterval of length d inside [-5, -2]. Select which descriptions represent Uniform(-5, -2), then state the support, full piecewise PDF, and full piecewise CDF.**

Given: X is measured in units and is continuous with constant density on [-5, -2] and density 0 outside; endpoints have probability 0.

6. **Let X be uniform on [5, 15]. Find P(3 <= X <= 17).**

Given: X is measured in units and is continuous with constant density on [5, 15] and density 0 outside; endpoints have probability 0.

Name _____ Score _____ Teacher _____ Date _____

Uniform Distribution

For X uniform on the stated closed interval [a,b], use density 1/(b-a) on the support and 0 outside it. Clip probability intervals to the support, divide overlap lengths for conditional intervals, include the boundary branches of the CDF, and give exact values where practical; otherwise round the final value to four decimals.

7. Let X be uniform on [-2, 1]. Find E(X).

Given: X is measured in units and is continuous with constant density on [-2, 1] and density 0 outside; endpoints have probability 0.

8. Let X be uniform on [-2, 2]. Let X be uniform on [-2, 2]. Write the full piecewise CDF, with correct boundary branches.

Given: X is measured in units and is continuous with constant density on [-2, 2] and density 0 outside; endpoints have probability 0.