Quiz2 (A)

Problem 1)

The arithmetic mean of a sufficiently large number of iterates of independent random variables, each with a well-defined expected value and well-defined variance, will be approximately normally distributed, regardless of the underlying distribution.

Problem 2)

The inverse method can be used

$CDF = \int 3x^2 dx = x^3 \ \rightarrow \ x \ = \ (CDF)^{1/3}$

CDF is the area of the distribution and $0 < CDF < 1$ and we can say

$CDF = rand(1, N)$;

$x \ = \ (CDF)^{1/3}$

x has the same distribution as $f(x) = 3x^2$.

Problem 3)

Normal

Poisson

Exponential

Problem 4)

While Euler's method makes use of the slope of the current point to find the height of the next point, the RK4 approach uses the weighted average of several points inside the next interval to find the height of the next point, which is more accurate.

Problem 5)

$Xp \ = \ @(x)\left[x(2), -\frac{k}{m} * x(1)\right]$;

Problem 6)

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Quiz2 = Adder()

Quiz2. A = 1;

Quiz2.B = 2;

Out = Quiz2.addEm()
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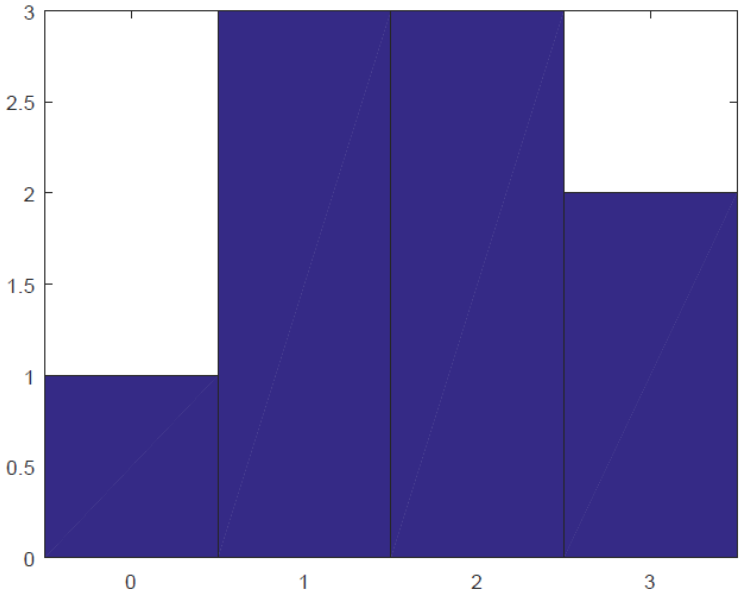
Problem 7)

```
syms X(t) a;

Dx = diff(X);

dsolve(Dx+a*X==0)
```

Problem 8)



Problem 9)

$A * B = \begin{bmatrix} 11 & 15 \\ 23 & 33 \end{bmatrix}$, matrix product

$A .* B = \begin{bmatrix} 1 & 6 \\ 15 & 24 \end{bmatrix}$, element wise product

Problem 10)

Your answer is correct.