1a. (5) Compute the infinity-norm of the vector

$$\begin{bmatrix} -4 \\ 2 \\ 3 \end{bmatrix}.$$

Answer:

$$\|x\|_\infty = \max(4, 2, 3) = 4\,.$$

1b. (5) Compute the 1-norm of the matrix

$$\begin{bmatrix} 1 & 2 & 3 \\ -1 & 4 & 0 \\ 1 & 1 & -2 \end{bmatrix}.$$

Answer:

$$\|A\|_1 = \max(3, 7, 5) = 7\,.$$

2. (10) Write Matlab statements to compute the product of two matrices, A and B, using the "saxpy" formulation of taking a scalar times a vector and adding it to another vector.

Answer:

```
[m,n] = size(A);
[n,p] = size(B);
C = zeros(m,p);
for i=1:p,
  for j=1:n,
    C(:,i) = C(:,i) + A(:,j)*B(j,i);
  end
end
```