



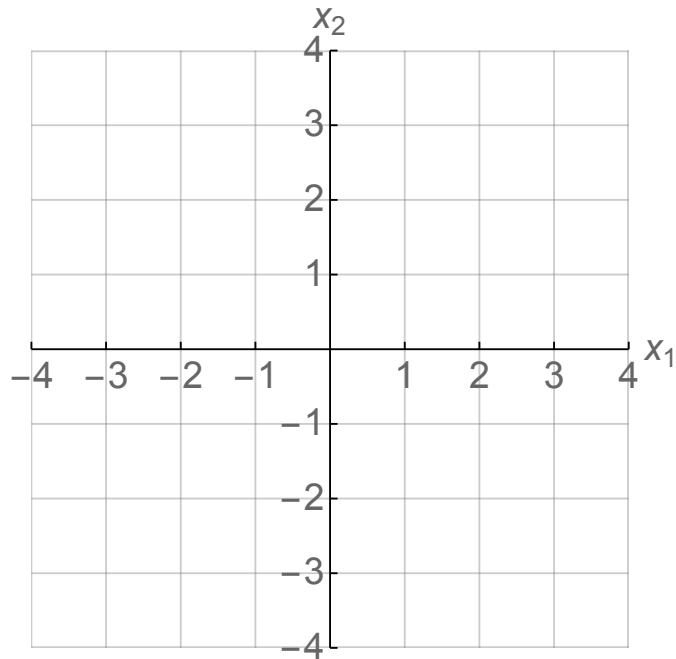
2. Let  $A = \begin{pmatrix} 1 & -1 \\ 4 & -4 \end{pmatrix}$ . On the same graph, draw each of the following:

(a) The span of the columns of  $A$ .

(b) The set of solutions to  $Ax = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$ .

(c) The set of solutions to  $Ax = \begin{pmatrix} 2 \\ 8 \end{pmatrix}$ .

Label each of these clearly.



- 3.** Find the set of solutions to  $x_1 - 3x_2 + 5x_3 = 0$  and write your answer in parametric vector form. Next, find the set of solutions to  $x_1 - 3x_2 + 5x_3 = 3$  and write the solutions in parametric vector form. How do the solution sets compare geometrically?

4. This is extra practice in case the studio finishes the rest of the worksheet early.

Let

$$A = \begin{pmatrix} 1 & 0 & 5 \\ -2 & 1 & -6 \\ 0 & 2 & 8 \end{pmatrix}, \quad b = \begin{pmatrix} 2 \\ -1 \\ 6 \end{pmatrix}.$$

Solve the matrix equation  $Ax = b$  and write your answer in parametric form.