

1. Use Cramer's rule to find the solution of the system:

$$3x + 5y = 1$$

$$7x + 8y = 1$$

2. Use Cramer's rule to find the solution of the system:

$$17x + 7y + 7z = 1$$

$$7x + 17y + 7z = 0$$

$$7x + 7y + 17z = 0$$

3. It is known that, for some missing value of a , the system:

$$ax - z = 1$$

$$3x + y - w = 0$$

$$x + 2z + 2w = 0$$

$$-x + 2y + 5w = 0$$

is inconsistent. Find the missing value of a .

4. Let

$$\vec{u} = 5\vec{i} - 3\vec{j} - 4\vec{k}$$

$$\vec{v} = -2\vec{i} + \vec{j} + 2\vec{k}$$

$$\vec{w} = -4\vec{i} + \vec{j} + a\vec{k}$$

- What value(s) of a make the vectors \vec{u} , \vec{v} and \vec{w} linearly dependent?
- Pick a value for a that makes the vectors \vec{u} , \vec{v} and \vec{w} linearly dependent. Then express one of the three vectors as a linear combination of the other two.
- Pick a value for a that makes the vectors \vec{u} , \vec{v} and \vec{w} linearly dependent. Give a geometric description of all linear combinations of \vec{u} , \vec{v} and \vec{w} .
- Pick a value for a that makes the vectors \vec{u} , \vec{v} and \vec{w} linearly independent. Give a geometric description of all linear combinations of \vec{u} , \vec{v} and \vec{w} .