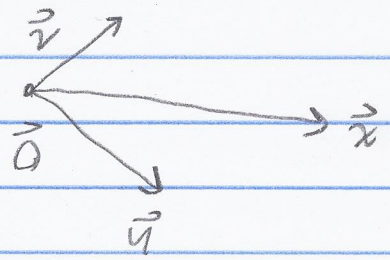
SECTION 1.1

EXERCISE #19

1.1.19 Find scalars $r, s \in \mathbb{R}$ such that

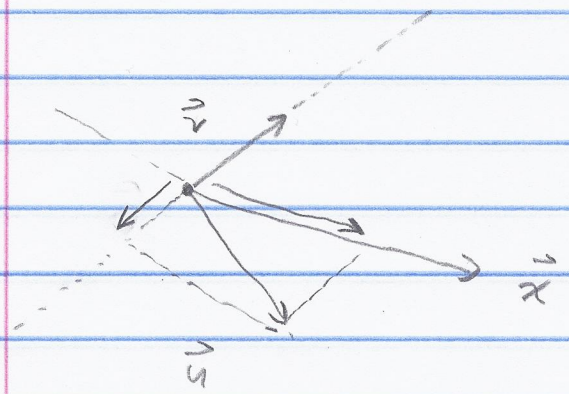
$$\vec{u} = r\vec{x} + s\vec{v}$$

in the following figure:



Solution

We use the Parallelogram Law of addition of vectors as follows:



I estimate that we need

$r\vec{x} = \frac{3}{5}\vec{x}$ (Hmm...)

and

$s\vec{v} = \frac{-4}{5}\vec{v}$ (Hmm...).

SO, we take ESTIMATE

$$\boxed{r = \frac{3}{5} \text{ and } s = \frac{-4}{5}.}$$