Step-1

Suppose $A=\begin{bmatrix} a & b \\ c & d \end{bmatrix}$

$\det(A-\lambda I)=\begin{vmatrix} a-\lambda & b \\ c & d-\lambda \end{vmatrix}=0$

$=(a-\lambda)(d-\lambda)-bc$
$=\lambda^2-(a+d)\lambda+(ad-bc)$

Step-2

Given that $|A-\lambda I|=\lambda^2-9\lambda+20$ and $a+d=9, ad-bc=20$

We get, $a+d=9, ad-bc=20$

There can be infinitely many integers which satisfy these equations.

Let us consider the ordered pairs of values of *a* and *d*

(1, 8), (2, 7), (3, 6),â€¦ which are positive and integer choices.

When *a* = 1, *d* = 8, we have the choices for *b* and *c* obtained by â€“*bc* = 12

This gives *b* = - 6, *c* = 2 or *b* = -3, *c* = 4 or *b* = -4, *c* = 3 or *b* = 6, *c* = - 2

So, some possible choices of matrices are $\begin{bmatrix} 1 & -4 \\ 3 & 8 \end{bmatrix},\begin{bmatrix} 1 & 4 \\ -3 & 8 \end{bmatrix},\begin{bmatrix} 1 & -6 \\ 2 & 8 \end{bmatrix},\begin{bmatrix} 1 & 6 \\ -2 & 8 \end{bmatrix}$