

Unshifted $A_k = QR$, $A_{k+1} = RO$ iterations

STAGE 1:

off-diag. rms - 1.000000

A -	1.0000	1.0000	1.0000	1.0000	V -	1.0000	.0000	.0000	.0000
	1.0000	2.0000	1.0000	1.0000		.0000	1.0000	.0000	.0000
	1.0000	1.0000	3.0000	1.0000		.0000	.0000	1.0000	.0000
	1.0000	1.0000	1.0000	4.0000		.0000	.0000	.0000	1.0000
Q -	.5000	-.2887	-.4082	-.7071	R -	2.0000	2.5000	3.0000	3.5000
	.5000	.8660	.0000	.0000		.0000	.8660	-.5774	-.8660
	.5000	-.2887	.8165	.0000		.0000	.0000	1.6330	-1.2247
	.5000	-.2887	-.4082	.7071		.0000	.0000	.0000	2.1213

STAGE 2:

off-diag. rms - 0.630990

A -	5.5000	-.2887	.2041	1.0607	V -	.5000	-.2887	-.4082	-.7071
	-.2887	1.1667	-.1179	-.6124		.5000	.8660	.0000	.0000
	.2041	-.1179	1.8333	-.8660		.5000	-.2887	.8165	.0000
	1.0607	-.6124	-.8660	1.5000		.5000	-.2887	-.4082	.7071
Q -	.9800	.1296	.0394	-.1460	R -	5.6125	-.4629	.1091	1.3229
	-.0514	.8982	-.1136	.4216		.0000	1.2724	.1323	-.9625
	.0364	-.0794	.9045	.4173		.0000	.0000	2.0340	-1.2857
	.1890	-.4125	-.4091	.7917		.0000	.0000	.0000	.4131

STAGE 3:

off-diag. rms - 0.218757

A -	5.7778	-.2425	-.1690	.0781	V -	.3563	.1296	-.0275	-.9249
	-.2425	1.5294	.3689	-.1704		.4454	.8427	-.0787	.2921
	-.1690	.3689	2.3658	-.1690		.5345	-.2593	.7910	.1460
	.0781	-.1704	-.1690	.3270		.6236	-.4537	-.6061	.1947
Q -	.9986	.0487	.0190	-.0078	R -	5.7859	-.3194	-.2556	.0944
	-.0419	.9664	-.2348	.0961		.0000	1.5688	.9083	-.2342
	-.0292	.2292	.9714	.0554		.0000	.0000	2.2135	-.1329
	.0135	-.1059	-.0313	.9938		.0000	.0000	.0000	.2986

STAGE 23: no further changes below,

though off-diag. rms - 0.000009

A -	5.8039	.0000	.0000	.0000	V -	.3320	.1359	-.2259	-.9057
	.0000	2.5077	.0000	.0000		.4011	.2261	-.8018	.3810
	.0000	.0000	1.3923	.0000		.5066	.6714	.5175	.1574
	.0000	.0000	.0000	.2961		.6872	-.6925	.1956	.0992

 λ_1 x_1

Unshifted $A_k = Q_k R_k$, $A_{k+1} = R_k Q_k$ iterations

Round 0:

$A_0 = \begin{bmatrix} 2.000000 & -1.000000 & 0 \\ -1.000000 & 3.000000 & -1.000000 \\ 0 & -1.000000 & 2.000000 \end{bmatrix}$	$V_0 = \begin{bmatrix} 1.000000 & .000000 & .000000 \\ .000000 & 1.000000 & .000000 \\ .000000 & .000000 & 1.000000 \end{bmatrix}$
$Q_0 = \begin{bmatrix} .894427 & .408248 & .182574 \\ -.447214 & .816497 & .365148 \\ 0 & -.408248 & .912871 \end{bmatrix}$	$R_0 = \begin{bmatrix} 2.236068 & -2.236068 & .447214 \\ 0 & 2.449490 & -1.632993 \\ 0 & 0 & 1.460593 \end{bmatrix}$

Round 1:

$A_1 = \begin{bmatrix} 3.000000 & -1.095445 & 0 \\ -1.095445 & 2.666667 & -.596285 \\ 0 & -.596285 & 1.333333 \end{bmatrix}$	$V_1 = \begin{bmatrix} .894427 & .408248 & .182574 \\ -.447214 & .816497 & .365148 \\ .000000 & -.408248 & .912871 \end{bmatrix}$
$Q_1 = \begin{bmatrix} .939336 & .330289 & .092499 \\ -.342997 & .904534 & .253320 \\ 0 & -.269680 & .962950 \end{bmatrix}$	$R_1 = \begin{bmatrix} 3.193744 & -1.943651 & .204524 \\ 0 & 2.211083 & -.898933 \\ 0 & 0 & 1.132882 \end{bmatrix}$

Round 2:

$A_2 = \begin{bmatrix} 3.666667 & -.758395 & 0 \\ -.758395 & 2.242424 & -.305516 \\ 0 & -.305516 & 1.090909 \end{bmatrix}$	$V_2 = \begin{bmatrix} .700140 & .615457 & .361961 \\ -.700140 & .492366 & .517088 \\ .140028 & -.615457 & .775632 \end{bmatrix}$
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Round 3:

$A_3 = \begin{bmatrix} 3.909091 & -.418273 & 0 \\ -.418273 & 2.067653 & -.153070 \\ 0 & -.153070 & 1.023256 \end{bmatrix}$	$V_3 = \begin{bmatrix} .560968 & .682769 & .468125 \\ -.785355 & .260102 & .561750 \\ .261785 & -.682769 & .682125 \end{bmatrix}$
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Round 4:

$A_4 = \begin{bmatrix} 3.976744 & -.214619 & 0 \\ -.214619 & 2.017408 & -.076546 \\ 0 & -.076546 & 1.005848 \end{bmatrix}$	$V_4 = \begin{bmatrix} .485143 & .700925 & .522820 \\ -.808571 & .131939 & .573415 \\ .332941 & -.700925 & .630757 \end{bmatrix}$
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whereas after Round 23 no further change is visible:

$A_{23} = \begin{bmatrix} 4.000000 & .000000 & 0 \\ .000000 & 2.000000 & .000000 \\ 0 & .000000 & 1.000000 \end{bmatrix}$	$V_{23} = \begin{bmatrix} .408248 & .707107 & .577350 \\ -.816497 & .000000 & .577350 \\ .408248 & -.707107 & .577350 \end{bmatrix}$
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λ_1

x_1