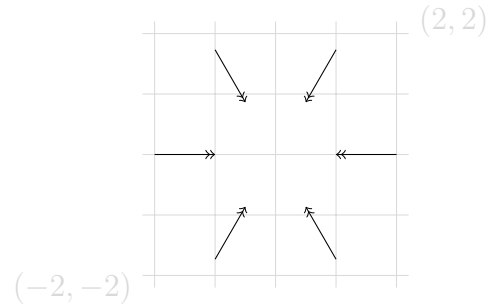
Informatics 1 Midterm 2, Fall 2024

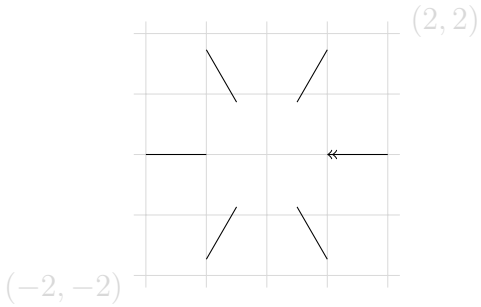
NAME* NEPTUN CODE* *000*

1.

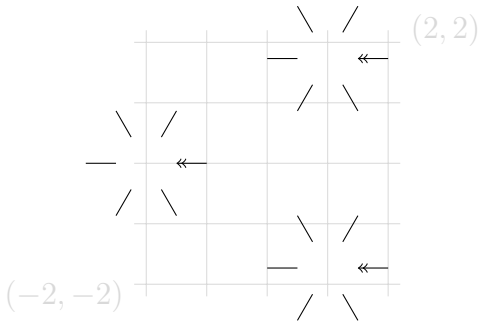
(A)



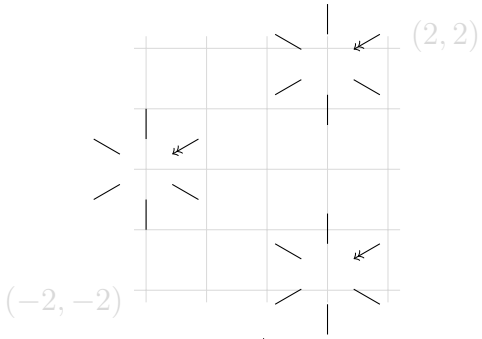
(B)



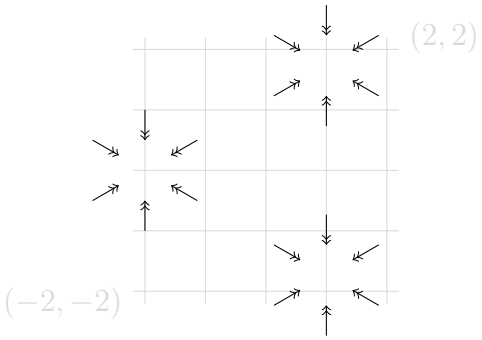
(C)



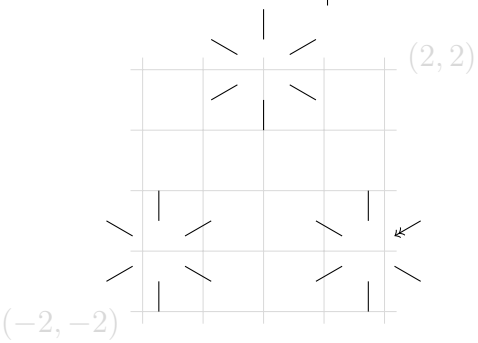
(D)



(E)



(F)



Source	Result

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \foreach \j in {60,180,300}`
`  {\foreach \i in {60,120,...,360}`
`  {\draw[->>,shift = {(\j:2)},rotate=30,scale=0.5]`
`  (\i:2) -- (\i:1) ;}}`
`\end{tikzpicture}`
	E

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \draw[->>,rotate=30]`
`  foreach \j in {60,180,300}`
`  {[shift = {(\j:2)}] (0,0)  foreach \i in {60,120,...,360}`
`    { (\i:1) -- (\i:0.5) }};`
`\end{tikzpicture}`
	F

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \foreach \j in {60,180,300}`
`  {\draw[->>,shift = {(\j:2)},rotate=30] (0,0)`
`  foreach \i in {60,120,...,360} {(\i:1) -- (\i:0.5)};`
`  }`
`\end{tikzpicture}`
	D

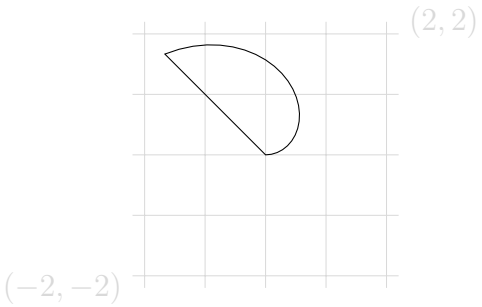
`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \draw[->>] (0:2) foreach \i in {60,120,...,360}`
`  { (\i:2) -- (\i:1) } ;`
`\end{tikzpicture}`
	B

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \foreach \i in {60,120,...,360}`
`  {\draw[->>] (\i:2) -- (\i:1) ; }`
`\end{tikzpicture}`
	A

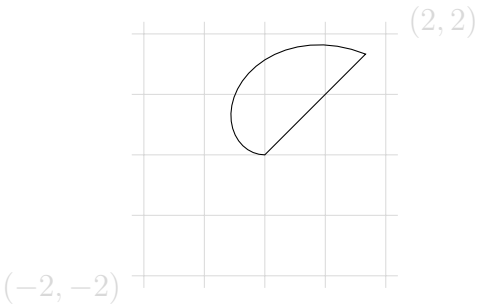
`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \foreach \j in {60,180,300}`
`  {\draw[->>,shift = {(\j:2)}, scale=0.5] (0,0)`
`  foreach \i in {60,120,...,360} { (\i:2) -- (\i:1) };`
`  }`
`\end{tikzpicture}`
	C

2.

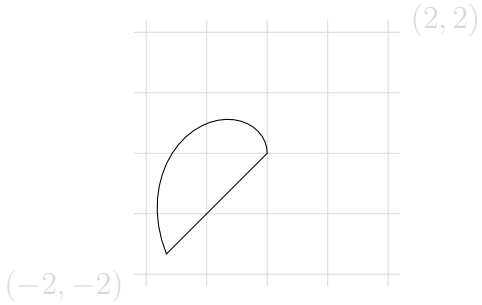
(A)



(B)



(C)



(D) `wrong source`

Source	Result

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \draw[rotate=90] plot[domain=0:3*pi/4] (deg(\x):\x) --cycle ;`
`\end{tikzpicture}`
	D

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \draw plot[domain=0:3*pi/4] ({deg(\x)}:\x) --cycle ;`
`\end{tikzpicture}`
	A

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \draw[rotate=90] plot[domain=0:3*pi/4] ({deg(\x)}:\x) --cycle ;`
`\end{tikzpicture}`
	C

`\begin{tikzpicture}`
` \draw[very thin, gray!30](-2.2,-2.2) node[below,left]{$(-2,-2)$}`
`  grid (2.2,2.2) node[above,right]{$(2,2)$};`
`  \draw plot[domain=-3*pi/4:0] ({deg(pi+\x)}:-\x) -- cycle ;`
`\end{tikzpicture}`
	B

3. (A) `11/7` (B) `1` (C) `1.57142857142857` (D) `16` (E) `2`

Source	Result
`mod(11,7)^2`	E
`11//7`	B
`(11%7)^2`	D
`11/7`	A
`(11/7).n()`	C

4. Let `v=vector([1,2,0]); m = matrix([[3,2,1],[1,-1,2],[1,2,1]])`
(A) `(1,-1,2)` (B) `(1, 2, 0)` (C) `(7, -1, 5)` (D) `5` (E) `3`

Source	Result
`m.column(1).norm()`	E
`m*(m.solve_right(v))`	B
`m*v`	C
`v.dot_product(v)`	D
`(m^(-1)*m^2).row(1)`	A