Polarization of Light

$\hat{x}$
$\hat{z}$
$\hat{y}$

The light moves in the $\hat{z}$ direction
The length shown here is much shorter than the coherence length
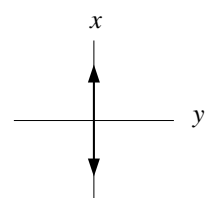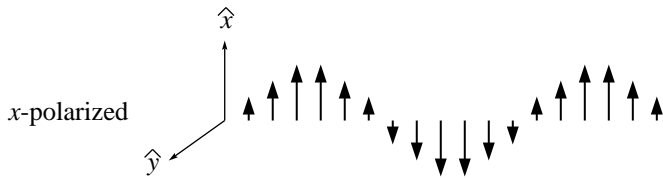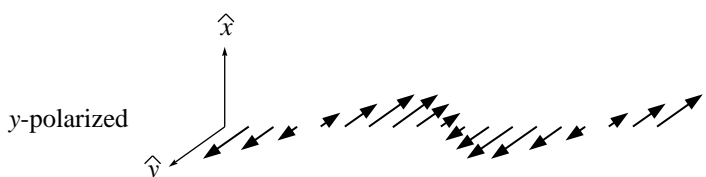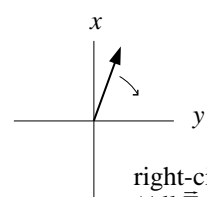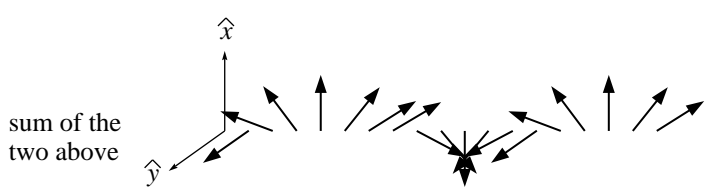The vector shown is $\bar{E}$

SIDE VIEW
(snapshot)

END VIEW
(in $\hat{z}$ direction at a given value of z)

x-polarized

$\hat{x}$
$\hat{y}$

x
y

y-polarized

$\hat{x}$
$\hat{y}$

x
y

45-polarized

$\hat{x}$
$\hat{y}$

x
y

x-polarized

$\hat{x}$
$\hat{y}$

$E_m \hat{x} \sin(kz)$

y-polarized

$\hat{x}$
$\hat{y}$

$E_m \hat{y} \cos(kz)$

sum of the
two above

$\hat{x}$
$\hat{y}$

x
y
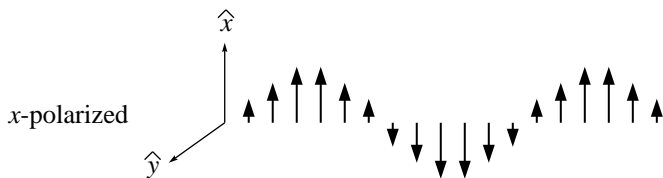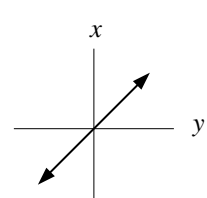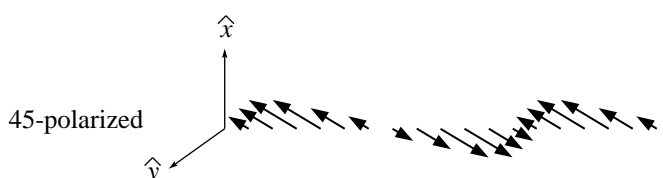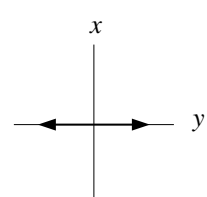
right-circularly polarized!
(All $\bar{E}$ vectors are the same length.
Tips of vectors form a left-handed spiral
wrapping around the axis.)