a) $z = \sqrt{2}\, e^{j\pi/4} = \sqrt{2}\,[\cos(\pi/4) - j\sin(\pi/4)] = \sqrt{2}\,(1/\sqrt{2} - j\,1/\sqrt{2}) = \boxed{1 - j}$

b) $z = e^{j\pi/2} = \cos(\pi/2) + j\sin(\pi/2) = 0 + j = \boxed{j}$

c) $z = e^{j\pi} = \cos(\pi) + j\sin(\pi) = -1 + j0 = \boxed{-1}$

d) $z = e^{j\,1/4\,\pi} = \cos(1/4\,\pi) + j\sin(1/4\,\pi) = \cos(-\pi/4) + j\sin(-\pi/4) = \boxed{1/\sqrt{2} - j\,1/\sqrt{2}}$